

# MANUFACTURERS' RECORD

A WEEKLY REVIEW OF THE IRON, STEEL, METAL & HARDWARE TRADES.

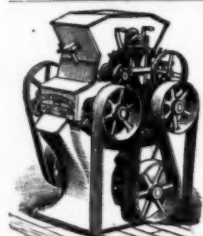
AND A MANUFACTURING AND TEXTILE PAPER, DEVOTED TO THE UPBUILDING OF SOUTHERN MANUFACTURES AND THE DEVELOPMENT OF THE MATERIAL RESOURCES OF THE SOUTH.

VOL. 8. No. 14.  
WEEKLY.

BALTIMORE, NOVEMBER 14, 1885.

\$3.00 PER ANNUM.  
SINGLE COPIES, 10 CENTS.

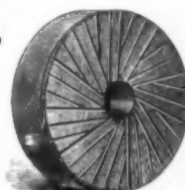
—MANUFACTURERS OF— **JAS. SMITH & CO.** —DEALERS IN—  
**CARD CLOTHING** Works, 413 to 421 Race St., Cor. of Crown. **Manufacturers' & Mill Supplies**  
Of Every Description. **COTTON and WOOLEN MACHINERY.** Office & Store, 137 Market St., Philadelphia. Of Every Description.



**NORDYKE & MARMON CO., INDIANAPOLIS, IND.**  
**Flour Mill Machinery.**

We make Rolls or Portable Mills for making New Process Corn Meal.  
Complete outfits on any system Rolls or Stones for Wheat Grinding.

Send for Circular of our \$500 Flour Mill Outfit.



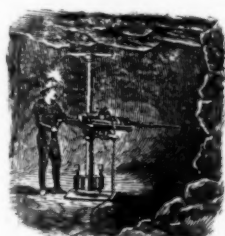
## ELEVATORS

Send for Illustrated Circulars

**MORSE ELEVATOR WORKS.**

**MORSE, WILLIAMS & CO.** Successors to CLEM & MORSE

Manufacturers and Builders of HYDRAULIC STEAM, BELT and Hand-Power, PASSENGER and FREIGHT **ELEVATORS** With most approved Safety Devices, Dumb-Waiters, Automatic Hatch-Doors, &c.  
Office: 411 CHERRY STREET.  
Works: FRANKFORD AVE., WILDEY & SHACKANAXON STS. PHILADELPHIA, PA.  
Branch Office, 108 Liberty Street, NEW YORK.



"ECLIPSE"

"STRAIGHT LINE"

**ROCK DRILLS, AIR COMPRESSORS,**

Machinery for Tunneling, Grading, Mining, Quarrying, etc.

**TEN COMPLETE TUNNELING PLANTS FURNISHED FOR SOUTH PENNA. RAILROAD, PA.**

FOR CATALOGUES, ESTIMATES, &c., ADDRESS,

**INGERSOLL ROCK DRILL CO., 10 Park Place, N. Y.**

**MORTON, REED & CO., Agents, Baltimore.**



**THE MEDART PATENT WROUGHT RIM PULLEY.**

OVER 300,000 NOW IN USE. THE LIGHTEST, STRONGEST, BEST BALANCED and CHEAPEST in the WORLD.  
Whole Pulleys from 9 inches to 120 inches diameter. Split Pulleys from 12 inches to 120 inches diameter. All widths of face up to 36 inches, crowning or straight, with single, double or triple sets of arms. Also Tight and Loose Pulleys. Absolute satisfaction guaranteed.

SHAFTING, HANGERS, COUPLINGS, &c.

**MEDART PATENT PULLEY CO.,** 1206 TO 1214 N. MAIN STREET, ST. LOUIS, MO.  
Stores: 99 to 101 W. Second St., Cincinnati. 24 & 26 S. Canal St., Chicago.

J. A. J. SHULTZ, President.

B. C. ALVORD, Secretary.

**SHULTZ BELTING COMPANY, ST. LOUIS, MO.**

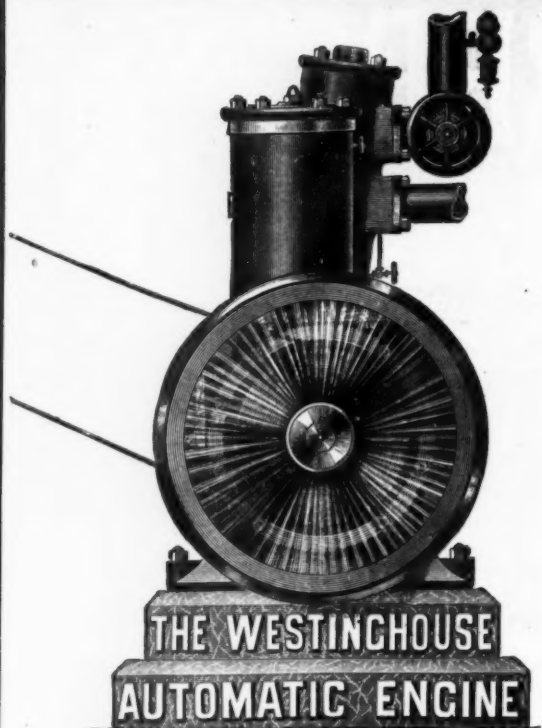
Manufacturers of Shultz Patent Fulled Leather Belting, Lace and Picker Leather.

OUR BELTING is made of Leather, tanned on the surfaces only; the interior (which is the fibre and strength of the hide) is not tanned, but Rawhide fulled and softened by our patent process. Our belting is more pliable, and hugs the pulley better and transmits more power than any other Belt. It does not pull out at the laceholes or rivets. It stretches less than any other Belt. It works equally well for the largest Driving Belts or for the fastest running machinery and smallest pulleys. OUR LACE LEATHER is made of Rawhide, by our patent process, without any tanning and is stronger and will wear better than any other. WE ALSO MAKE THE BEST PICKER LEATHER AND BELT GREASE IN THE COUNTRY. Satisfaction guaranteed.

Southern Agents—FRED. N. OGDEN, New Orleans, La.

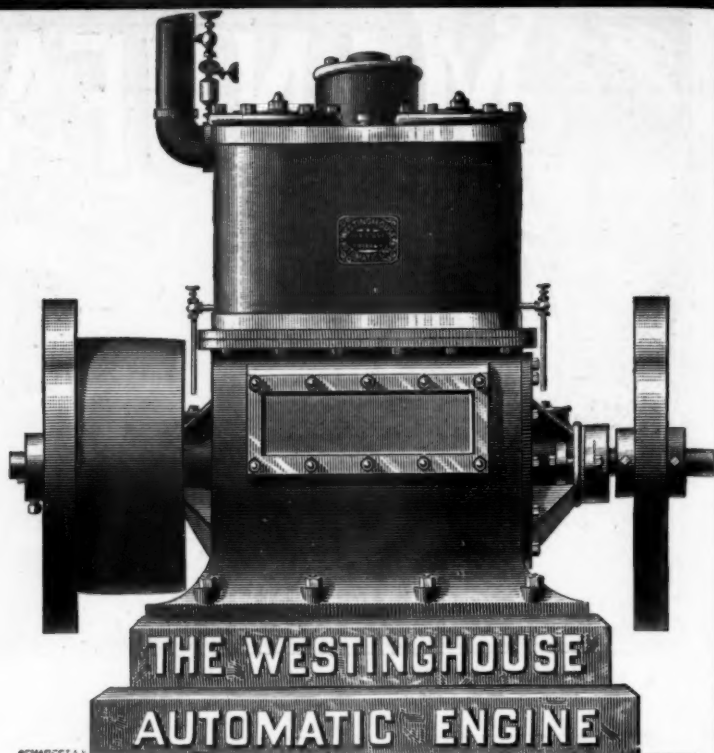
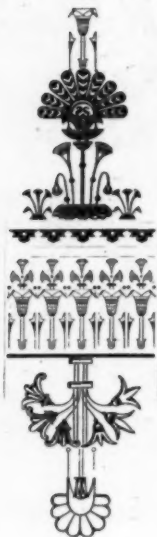
J. H. COFFIN & CO., Memphis, Tenn.

J. L. LINDSAY, Richmond, Va.



We have carefully prepared Special Circulars with valuable information on  
*Paper Mills, Saw and Planing Mills, Rolling Mills, Electric Lighting, Flour Mills, Railroad Applications, Centrifugal Pumps, &c.*

FREE ON APPLICATION.



There are four indisputable evidences of the Established Success of the Westinghouse Engine:  
First—The volume and increase of sales, out of all proportion to any other Engine.  
Second—The fact that (May 1) *Twenty-One Per Cent.* of our Orders are Repeated Orders from Actual Users (not Agents,) ranging from 24 to 124 orders.  
Third—The steady increase of the average size of Engine sold.  
Fourth—The persistent attempts to copy and evade our Patents by Builders of character and reputation.

WE ADVERTISE  
IN THIS ISSUE  
OUR

## ENGINE ÷ DEPARTMENT.

— WITH THE —

→ Westinghouse ✕ and ✕ Reynolds-Corliss ✕ Engines ←

WE COVER THE WHOLE FIELD OF STATIONARY ENGINEERING WITH UNPREJUDICED JUDGMENT.

→ WE WILL PLAN AND CONTRACT FOR YOUR ENTIRE PLANT, ←

Including Boilers, Engines, Heaters, Pumps, Piping, Shafting, Hangers, Pulleys, Fans, Exhausters, Ventilating Wheels, &c.  
Also complete Electric Light Installations, and will deliver the whole in running order for

**ONE FIGURE AND ONE PROFIT.**

**WESTINGHOUSE, CHURCH, KERR & CO.,**

Contracting and Consulting Engineers,

17 Cortlandt Street, New York.

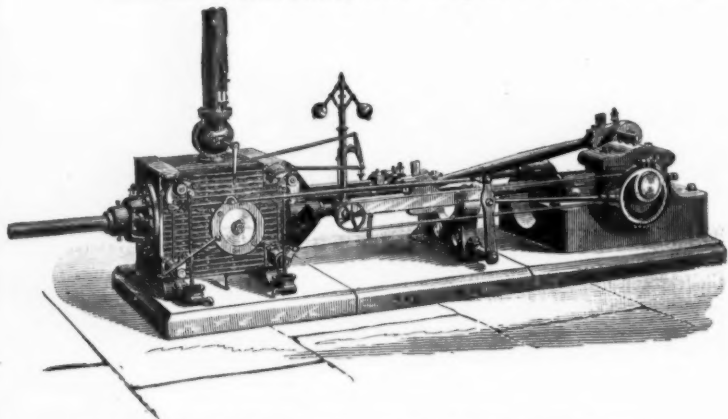
H. H. WESTINGHOUSE.

WM. LEE CHURCH.

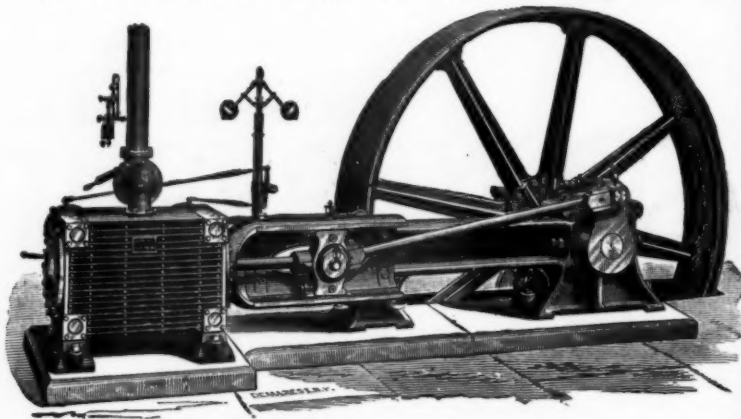
WALTER C. KERR.

ISAAC H. DAVIS.

— Also controlling the Huyett & Smith Fans and Ventilators, the American Paper Pulley, &c., &c. —



WROUGHT-IRON FRAME.—400 to 1,000 Horse-Power.



CAST-IRON FRAME.—Up to 600 Horse-Power.

**WE REGARD THE REYNOLDS-CORLISS ENGINE, BUILT BY E. P. ALLIS & CO., MILWAUKEE,**

as in a marked degree the best of its type in respect to the design of its details, its massive construction and very superior workmanship. We call especial attention to the wrought-iron bed, and invite examination of working drawings, which can be seen at our office. Or we will send same with one of our engineers to any party contemplating a purchase. These drawings show the superiority of detail design in a manner that cannot be approached in any advertisement or correspon-

dence. Mr. Edwin Reynolds is probably at this moment the most successful designer of heavy Compound Condensing Engines in the country. The high-duty Pumping Engines, high-speed Blast Engines (with Reynold's patent metal air valves) and Sewage Pumps, built by the above concern, represent the most advanced engineering. They also build an engine designed especially for high-speed service in rolling mills, having a positive valve motion, cut-off ranging to  $\frac{1}{4}$  stroke and speed varia-

ble while running. The company makes a specialty of heavy work, being fully equipped with large tools. Having been appointed Sole Representatives of Messrs. E. P. Allis & Co., we will estimate as such on heavy engineering construction for Cotton Mills, Rolling Mills, Steel Works, Blast Furnaces, Water Works, Municipal Improvements, &c. Send for our Circular of the Reynolds-Corliss Engine, giving comparative illustrations of details.

**WESTINGHOUSE, CHURCH, KERR & CO.**



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G. E. TAFT, Agent.

H. ELLIS, Superintendent.

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## COTTON MACHINERY

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RING SPINNING, SPOOLERS, WET and DRY TWISTERS,

— REELS, —

— WARPERS, \* DRESSERS, \* LOOMS, \* &C. —

— Whitinsville, Worcester County, Mass. —

SACO WATER-POWER MACHINE SHOP,

— BIDDEFORD, MAINE, —

Manufacturers of

## COTTON \* MACHINERY

OF THE MOST IMPROVED PATTERNS.

### CARDS,

Cylinders, 36x36 and 36x30, with 20 tops and Self-Strippers and Railway Troughs. Union Cards, with workers, strippers and tops.

### FINISHER RAILWAY HEADS.

DRAWING FRAMES, ANY LENGTH, WITH 3, 4 AND 5 LINES OF STEEL ROLLERS.

English Slubbers and Fly Frames, With Long or Short Bolsters.

— BOBBINS — 12x6, 11x5½, 10x5, 9x4½, 8x4, 7x3½, 6x3, and 5x2½.

RING SPINNING FRAMES, 2, 4½, 4¾ AND 4½ INCH RINGS.

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SELF-ACTING MULES, Parr, Sharp and Roberts' and Higgins' Pattern,

14, 15-16, and 14-inch Gauge.

S. W. RICHARDSON, Treasurer,

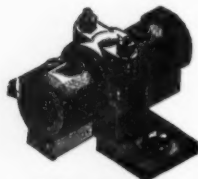
No. 1 Simmons Building, Boston.

JAS. H. McMULLAN, Agent,

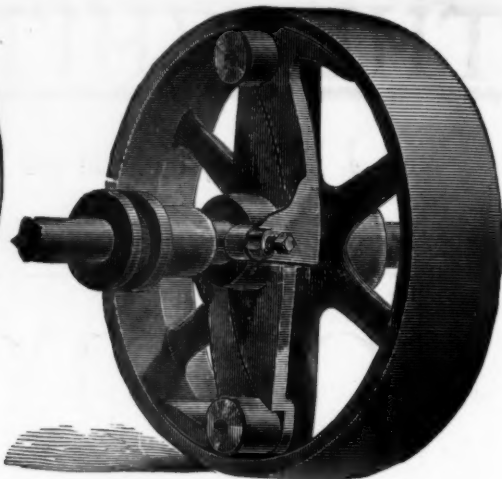
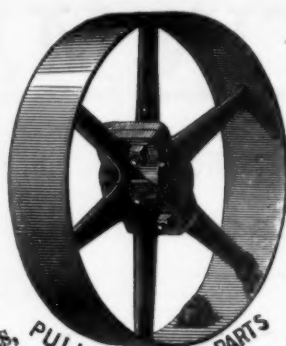
Biddeford, Maine.



ADJUSTABLE SELF-OILING HANGER.

Ball and Socket  
Self-Oiling Pillow Block.DOUBLE-BRACED ADJUSTABLE  
SELF OILING HANGER.Adjustable Self-Oiling  
Post Hanger.  
6 inches from post to  
center of shaft.

**FAIRMOUNT MACHINE WORKS.**  
Office, 2106 Wood St., Philadelphia.  
**THOMAS WOOD,**  
Manufacture as Specialties  
Power Looms, Patent Bobbin or Quill  
Winding Machines, Plain and Presser  
Heaving Machines, Dyeing, Sizing,  
Warp Spinning, Finishing and Cal-  
endering Machines,  
**WARPING MILLS,**  
16, 18 and 20 yards Circumference,  
WITH IMPROVED HECKS.  
**SHAFTING,**  
With Patent  
ADJUSTABLE SELF-OILING HANGERS, PULLEY IN TWO PARTS  
8, 10, 12, 15, 18, 20, 24 and 30 in. drop.  
Also WALL, POST AND GIRDER HANGERS.  
Pulleys, from 4 inches to 10 feet in diameter.  
**PATENT FRICTION PULLEY.**  
Pulleys in two parts, any size required.  
**PATENT HOISTING MACHINES.**  
Oil Presses for Lard, Fish and Paraffine.



PATENT FRICTION PULLEY.

Simple, reliable and very durable,  
Suitable for any kind of driving, they  
serve equally well as driver or driven.

Special Driving,  
such as Angular, Muley, and Gallows Driving,  
furnished for any position  
where possible to transmit power by belts.  
PULLEYS from 4 inches to 10 feet in diameter.

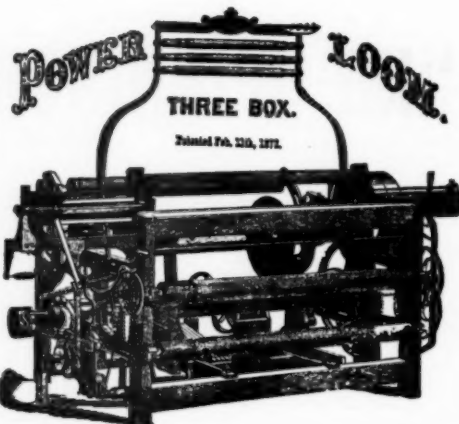
Why use old style Bearings, that require oiling  
every day, when you can get Bearings at less cost  
that only require oiling once in Six Months, and  
thus save oil and labor enough to pay for the bear-  
ings in use. Test the matter for yourselves; a  
trial always secures the trade.

ADDRESS.

**THOS. WOOD,**

Office, 2106 Wood St.

PHILADELPHIA, PENNA., U. S. A.



# THE LAMB KNITTING MACHINE MANUFACTURING CO.

MANUFACTURERS OF

THE LAMB KNITTING MACHINES,

TUTTLE KNITTING MACHINE,

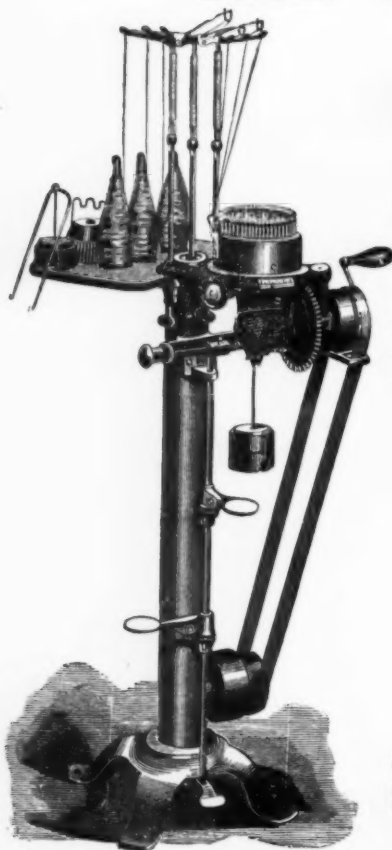
—AND—

New AUTOMATIC CIRCULAR RIB KNITTING MACHINE

New Automatic Circular Rib Knitting Machine

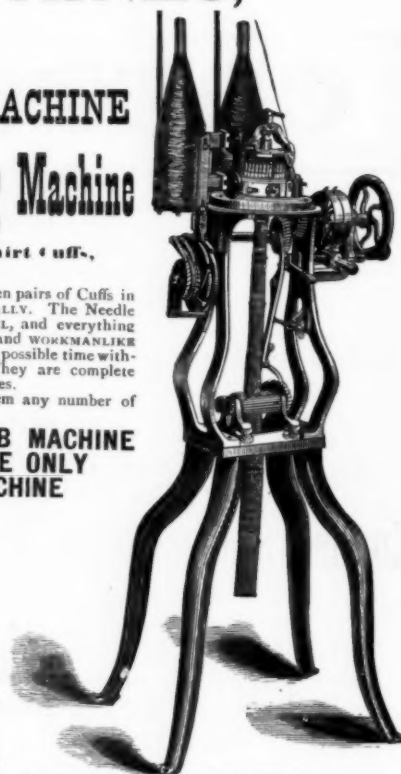
For Knitting Ribbed Tops for Socks, Shirt Cuffs,  
and Drawer Bottoms.

This machine will produce from twenty-five to thirty dozen pairs of Cuffs in  
ten hours, making the WELT and LOOSE COARSE AUTOMATICALLY. The Needle  
Cylinder and Dial are made of FORGED CAST STEEL, and everything  
about the machine is built in the most THOROUGH and WORKMANLIKE  
manner, with the view of having them run the longest possible time with-  
out repairs. They are complete  
within themselves.

We make them any number of  
ribs desired.**THE LAMB MACHINE  
IS THE ONLY  
MACHINE**

THE LAMB MACHINE.

Send for Full Particulars of  
the Above Machines to



The Lamb Knitting Machine Mfg. Co's New  
**CIRCULAR RIB KNITTING MACHINE,**  
For Knitting Ribbed Tops, for Socks, Shirt Cuffs  
and Drawer Bottoms.

## THE LAMB KNITTING MACHINE MANUFACTURING CO., CHICOPEE FALLS, MASS.

IN CORRESPONDING, PLEASE MENTION "THE MANUFACTURERS' RECORD."



# HOWARD & BULLOUGH, & RILEY,

BUILDERS AND IMPORTERS OF

## COTTON MACHINERY.

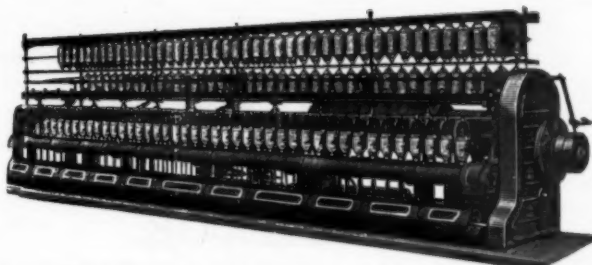
Wool, Worsted and Flax Machinery and English Card Clothing. Hardened and Tempered Steel Wire a Specialty.  
MILL ENGINEERS. No. 19 PEARL STREET, BOSTON, MASS.

GREAT SUCCESS OF OUR  
PATENT ELECTRIC STOP-MOTION,

ALREADY APPLIED TO OVER  
10,000 DELIVERY HEADS  
71,000 INTERMEDIATE ROVING SPINDLES.

The quality of Sliver produced by our Frames surpasses all others, and Waste, Single and Roller Laps are prevented, and production increased.

Correspondence Solicited. Send for Circulars.



SPECIALTIES:  
EXHAUST OPENERS, LAPPERS, (LORD'S  
EVENERS) IMPROVED ROLLER CARDS,  
PRODUCE MORE AND MAKE LESS  
WASTE THAN ANY OTHER.

7,000 SELF-STOPPING WARPERS,  
Already working with latest improvements.

800 CYLINDER SLASHERS  
Now at work in America alone

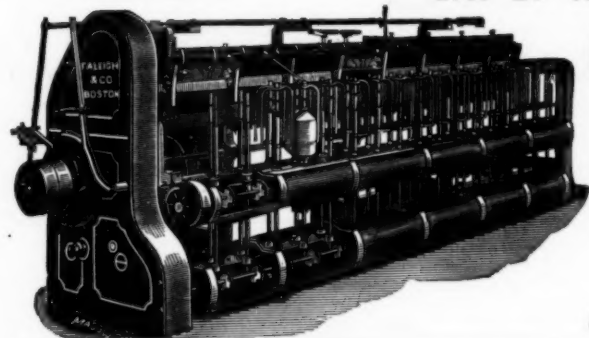
Patent and plain Spindle, Spinning and Twisting Frames,  
Spoolers, Reels and Circular Warpors, Cloth Folders, Size Kettles  
plain and Fancy Looms, Spindles, Flyers and Fluted Rolls.

SLUBBING AND ROVING FRAMES WITH LATEST AND BEST IMPROVEMENTS.

## F. A. LEIGH & CO.

### Importers of Mill Machinery,

—No. 40 WATER STREET, BOSTON, MASS.—



Openers, \* Lappers, \* Cards, \* Drawing,  
Slubbing and Roving Frames,  
CARD CLOTHING, Etc.

Correspondence Solicited. Send for Circulars.



## GANDY'S PATENT MACHINE BELTING

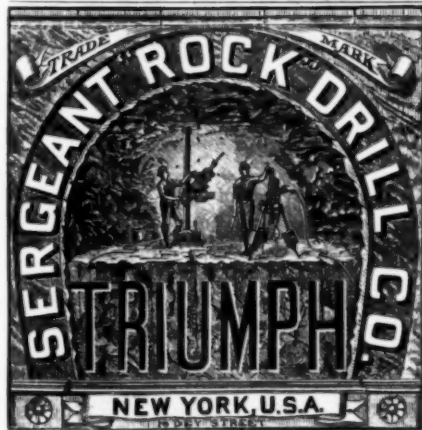
GOLD MEDAL AWARDED NEW ORLEANS, 1885, FOR BEST RUNNING BELTS.

Made PERFECTLY Straight and any Length without Joints.

For Main Driving it is the Best. Much Cheaper Than Leather.

MANUFACTURED BY

THE GANDY BELTING CO., BALTIMORE, MD.



## THE "TRIUMPH" ROCK DRILL

### and NORWALK AIR COMPRESSOR

Are the Latest and Most Improved Machines that were ever designed for the work required of them. They are the Most Simple, Economical and Effective now known, and will satisfy all Purchasers.

Boilers, Steam Pumps, Hoisting Engines, Pipe and Fittings, Electric

Blasting Apparatus, Powder, Caps and Fuse, Steam and Air Hose, Wire Rope,

—And General Mining and Contractors' Supplies.—

Complete Specifications for Rock Drilling and Mining Plants Furnished on Application.

SERGEANT DRILL CO., 16 Dey Street, New York, U. S. A.

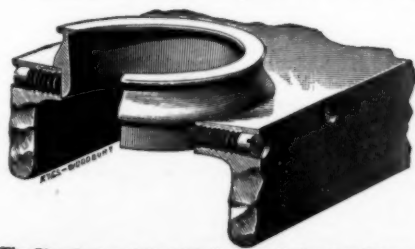
## WHITINSVILLE SPINNING RING CO.

WHITINSVILLE, MASS., U. S. A.

SUPERIOR WORKMANSHIP.

NOT EXCELLED IN DURABILITY.

EVERY RING WARRANTED.



The Simplest and Best Method of Adjusting Rings.

SEND FOR SAMPLE AND PRICE-LIST.



**THE DEANE STEAM PUMP CO.**

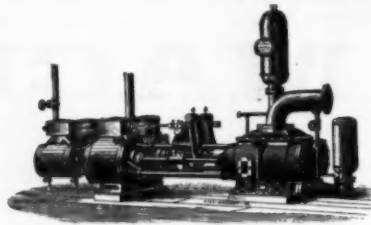
— HOLYOKE, MASS. —

BUILD

**STEAM \* PUMPING \* MACHINERY**

OF EVERY VARIETY.

Send for New Catalogue No. 22.

**THE DEANE STEAM PUMP CO.**

NEW YORK, BOSTON,

CHICAGO, PHILADELPHIA, ST. LOUIS,

MAKE A SPECIALTY OF

**Water Works ENGINES**

FOR THE SUPPLY OF CITIES AND TOWNS.

**HELL GATE**

— BLOWN UP WITH —

**240,000 Pounds of RACKAROCK.**

Safer than any other High Explosive.

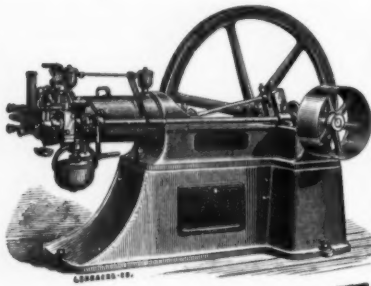
Stronger than No. 1 Dynamite, and Cheaper.

For Circulars address

**RENDROCK POWDER CO., 23 Park Place, N. Y.****Rand Drills.**Every Hole for the great blast at FLOOD  
ROCK was drilled with the**RAND DRILLS.**

\* RAND DRILL CO. \*

23 PARK PLACE, N. Y.



Over 14,000 in Use.

**Otto Gas Engine**20 to 70 per cent. less Gas  
consumption than  
ANY other ENGINE.

Working Without Boiler, Steam, Coal, Ashes or Attendance.

Started instantly by a Match, it gives full power immediately. When stopped, all expense ceases.

No explosions, no fires nor cinders, no gauges, no pumps, no engineer or other attendant while running. Recommended by Insurance companies.  
UNFURPASSED IN EVERY RESPECT for hoisting in warehouses, printing, ventilating, running small shops, &c. Sizes: 1 to 25-horse power.

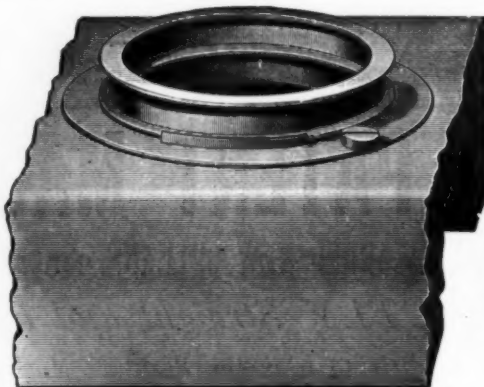
Branch Office, 214 Randolph St., Chicago.

**SCHLEICHER, SCHUMM & CO., N. E. cor. 33d and Walnut Sts., Philadelphia.**

DOUBLE ADJUSTABLE

**Spinning Rings.****GEORGE DRAPER & SONS,**

HOPEDALE, MASS.

TELEGRAPH ADDRESS AND RAILROAD STATION,  
MILFORD, MASS.

	Number of Rings sold.	Number of Rings sold for repairs.
1869.....	6,025.....	
1870.....	20,258.....	
1871.....	38,648.....	
1872.....	94,264.....	12
1873.....	117,301.....	
1874.....	168,398.....	500
1875.....	223,224.....	963
1876.....	185,319.....	947
1877.....	270,811.....	946
1878.....	215,214.....	3,309
1879.....	335,918.....	8,007
1880.....	567,860.....	11,264
1881.....	659,730.....	8,974
1882.....	636,715.....	22,515
1883.....	416,500.....	21,689
1884.....	319,869.....	25,105
1885, 9 mos. 212,056.....	22,373	
Total number sold.....	4,489,794	126,604
Total number in use.....	4,363,190.	

The great durability of our Rings is shown by the fact that we have more rings in use over twelve years old than all we have sold for repairs.

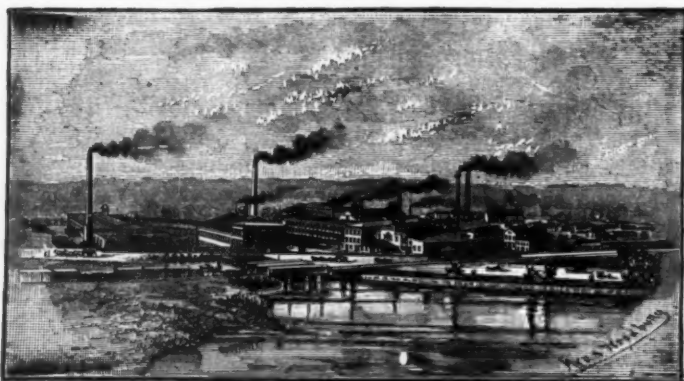
This statement shows unmistakably that a mill once supplied with our rings need think but little of the cost of repairs. As the number sold for repairs is an average of about twenty per cent. of the number sold the tenth year before, the average life of our rings will be at least twelve years.

Do not make the mistake of ordering new frames without specifying Double and Adjustable Rings. While they cost more to begin with, they are much the cheapest in the end, on account of their uniform excellent quality and unparalleled durability.

As an encouragement to use none but the best of Rings, we reduced the price on and after the first day of January, 1885, of those 1 3/4 inches or less in diameter, without holders and screws, to be used only to take the place of our rings worn out, to 12 cents each.

**Washburn & Moen Manufacturing Co., Worcester, Mass.**

Wire Drawers, and Manufacturers of Iron and Steel Wire of Every Description.

Iron and Steel Telegraph  
and Telephone Wire.Patent Steel Wire Bale  
Ties, Pump Chains,  
Chain Wire, Steel Wire  
for Springs, Needles and  
Drills, Watch Main  
Springs.Send for Price-Lists,  
Circulars and Descriptive  
Pamphlets on Our  
Specialties.

NEW YORK WAREHOUSE:

21 Cliff Street,

New York City.

**GLIDDEN PATENT****STEEL BARB WIRE.**

The Best Fence Material in Use.

For Sale by Special Agents and Hardware

Proof against Fire, Wind and Flood.

Dealers in all Parts of the United States.

CHICAGO WAREHOUSE:

107 Lake Street,

Chicago, Illinois.



# BALTIMORE Manufacturers' Record.

Published Every Saturday by  
BIGSBY & EDMONDS.

J. H. Edmunds. J. W. Bigsby. Wm. H. Edmunds.

R. H. EDMONDS, EDITOR.

—OFFICE.—

71 and 73 Exchange Place, Cor. Commerce St.,

BALTIMORE.

NEW YORK BRANCH OFFICE:

Room 6, No. 118 Fulton Street,  
J. W. BIGSBY, Resident Partner.

SOUTHERN OFFICE, ATLANTA, GA.—

J. W. AVERY, Manager.

JAMES L. ELY,

Advertising Agent for New York and Vicinity.  
Room 14, 29 Park Row, New York.

## Price of Subscription Per Year in Advance:

(POSTAGE INCLUDED.)

TO UNITED STATES AND CANADA, \$3.00  
OTHER COUNTRIES, — — — 4.50

## ADVERTISING RATES:

One square (14 lines Agate, 1 inch) 1 time... \$ 1.50  
" " " " " 4 " " " " " 5.00  
" " " " " 3 mos. " " " " " 10.00  
" " " " " 6 " " " " " 18.00  
" " " " " 1 year " " " " " 32.00  
For advertising on outside pages add 50 per cent. to  
the above rates.  
Reading Notices 50 cents per line each insertion.

BALTIMORE, NOVEMBER 14, 1885.

THE Shenandoah Valley Railroad has recently put on new sleeping cars between Hagerstown and Roanoke, for which the charge for a night, the time of the run between the terminal points of this road above named, is only one dollar, just half the Pullman charge for the same service. These sleeping cars have been constructed by the railway company itself for its own use. The editor of the Virginian pronounces them not only equally as comfortable and pleasant as the Pullman sleepers, but in several particulars much more agreeable, especially in this, that there are no upper berths, thus making every berth at the half single rate as airy and pleasant as a whole section in a Pullman sleeper, for which the charge is never less than four dollars.

A new national bank has been organized at Asheville, N. C., with Mr. Wm. E. Breese, of Charleston, S. C., as president. Asheville is one of the Southern towns heretofore mentioned as needing more banking capital. The new bank will be in the hands of experienced financiers, and, while its success as a profitable enterprise to the stockholders may be accepted as assured, its benefit to the business interests of Asheville will be very great.

LIGHT, HEAT AND POWER is the name of a new paper just established at Philadelphia, devoted to the gas interests of the country. It is a handsomely gotten up paper of 28 pages, and even in its first issue looks prosperous. The editor is an accomplished journalist, thoroughly conversant with gas matters, and will be sure to make a good paper.

## A Revolution in Progress.

In North Carolina it is evident that this is "the tobacco age," and the prosperity that it is bringing to that good old State is somewhat phenomenal. The growth of Durham, Winston, Salem, Reidsville, Henderson, and a dozen other towns under the influence of tobacco has been as surprising as the growth of such places as Anniston and Birmingham. Tobacco factories by the dozen have sprung up all over the tobacco section, over 100 having been erected last year alone, while the same progress is still going on. An illustration of the vivifying influence of tobacco upon whatever country it strikes, and the growth of every town that becomes a good tobacco market, is seen in a late letter in the Raleigh News and Observer from Warrenton. When the war ended, and for many years afterwards, Warren county, like a great part of the South, was very poor; the farmers were in debt and unable to get out of it by raising cotton, and the outlook was not regarded as at all cheering. The tobacco crop that prior to 1860 had made this one of the best counties in the State, had dwindled to very small proportions, the yield of 1870 being only 100,000 pounds against 3,000,000 pounds in 1860. By 1880 the crop had increased to 992,000 pounds, and from that it rose to 2,000,000 pounds in 1884, and about 3,000,000 this year. The growth of the tobacco cultivation caused Warrenton to become a tobacco market; and now, instead of a quiet country town, lacking life and animation, there is a rush of business there. New tobacco warehouses of immense size are going up, business men from elsewhere are locating there in large numbers; new streets are being laid out and building sites taken up; the public roads to the town are being improved and altered; a new ferry is being opened on the Roanoke. Prize houses are going up rapidly. Trade is better than it has been for years, and the statement is made that the business men who have located there since September 1 command in the aggregate \$1,000,000 capital. Soon we will hear of tobacco factories going up, and Warrenton will fall in line with the hundreds of other cities and towns of the South that are steadily moving on towards great wealth and population. Truly it is a pleasant tale that falls to the lot of the MANUFACTURERS' RECORD to tell from week to week. It is a story of steady progress, of ever-increasing prosperity, of a revolution throughout the South that is adding millions and millions of dollars to the wealth of the Sunny South. The MANUFACTURERS' RECORD rejoices that it is able to lend a helping hand to this upward march of the whole South.

If you are not already a subscriber to the BALTIMORE MANUFACTURERS' RECORD, send us \$3 and you will receive it regularly for one year, or six months for \$1.50.

## The Wonderful Increase in the Railroad Interests of the South Since 1880.

Since 1879 the railroad interests of the South have attracted great attention. Many of the old roads that were in existence at that time have been purchased by syndicates and vastly improved, their rolling stock increased, steel rails substituted for badly worn iron rails, and their lines extended so as to develop new territory or make new connections. During the same period there has been great activity in the building of new roads. Several hundred million dollars have been expended in this direction, and a wonderful impetus given to the development of the latent resources of the South. The great increase in the railroad interests of the Southern States during the last five years is scarcely appreciated, and to show something of its extent we have compiled some statistics comparing the railroad interests of the South in 1880 and 1885. The increase in the mileage is best shown by a comparison by States:

	Mileage, Dec. 31, 1884.	Mileage, Dec. 31, 1885.	Increase.
Maryland.....	1,082.28	1,040	42.28
Virginia.....	2,687.89	1,893	794.89
North Carolina...	2,938.23	1,486	452.23
South Carolina....	1,563.33	1,427	136.55
Georgia.....	2,977.55	2,459	518.55
Florida.....	1,324.19	548	776.19
Alabama.....	2,190.96	1,843	347.96
Mississippi.....	1,843.94	1,127	716.94
Louisiana.....	1,315.85	652	663.85
Tennessee.....	2,165.98	1,843	322.98
Texas.....	6,198.10	3,244	2,954.10
Arkansas.....	1,764.16	859	905.16
Kentucky.....	1,886.54	1,530	356.54
West Virginia.....	1,066.48	691	375.48
Total.....	39,965.70	20,642	19,323.70

The smallest increase in any one State was 42 miles in Maryland, a State in which there has been but very little railroad building for some years. South Carolina, in which railroad building ought to have been as active as in the adjoining States, shows an increase in mileage of only 136.55 miles. It is very easy to see in these figures the influence of the railroad commission of that State, and the unjust railroad laws passed several years ago. Had South Carolina permitted the owners of the railroads within her limits to manage their own property, and invited capitalists to come and develop her railroad interests rather than to place a barrier in their way there would have been far more activity in railroad building in that State than there has been. It is true that the South Carolina railroad laws were modified last year, and that since then there has been more disposition on the part of some capitalists to build roads in that State, but others, not knowing what new laws may be passed in the future, still refuse to invest their money in South Carolina railroad property. Virginia shows an increase of 794.89 miles which is exceeded by only two States, Texas and Arkansas. The building of these roads in Virginia has caused a very marked improvement in many sections of that State, and the establishment of many important industries that are largely adding to the wealth of the State.

In North Carolina we find an increase of 452 miles; in this State some very important lines have been constructed, and especially important are those which are now opening up to the world, the section known as Western North Carolina, a magnificent territory marvelously blessed by nature, rich in its vast forests, its inexhaustible mineral resources, the wonderful beauty of its scenery, and the health-giving properties of its atmosphere. In Georgia there has been an increase of 518 miles, and, but for the tyrannical laws that were passed in that State a few years ago, the increase would have been much greater. In many parts of the State railroads are badly needed, and railroad building would be very active if railroad owners were allowed the common rights of all other property holders, and permitted to manage their own property. The communistic spirit, which has been displayed by several of the Southern States in their dealings with railroads, is equally as much at fault and against the principles of American government as the teachings of the "sand lot" orators. We have not had so far in the South the serious labor troubles that have so greatly disturbed the peace of many Northern and Western cities, but unfortunately a few false teachers, seeking their own gain, have succeeded in arraying a large class of people against the railroads, and thus, as in other sections, produced enmity against capital on the part of labor. This has already prevented the investment of many millions of dollars that would have gone into the South, and the building of many railroads that are much needed. Georgia has suffered seriously from this agrarian spirit, but it is believed that the people of that State are beginning to appreciate their mistake, and that the dishonest railroad laws of Georgia will before long be greatly modified. Florida, having a population of less than 400,000, has built 776 miles of road since 1880, and now has 1,324 miles against 548 in 1880. The remarkable development of that State during the last five years, and the enormous winter travel have made it run far ahead of any other Southern State in the percentage of increase in railroad building since 1880. Florida has wisely left her railroads to the management of the people who own them; had she done otherwise her prosperity would not be so great as it now is. Alabama shows an increase of 347 miles, largely due to the building of roads, to open up the vast mineral wealth of that State. In Mississippi the gain has been 716 miles; in Louisiana 663 miles, and in Tennessee 322 miles. There are probably few States in the South needing additional railroad facilities more than Tennessee. Much of her vast mineral, agricultural and timber wealth cannot yet be utilized on account of the lack of transportation facilities, but the legislature, a few years ago, enacted laws that effect-



ally put a stop to railroad building. Seeing the injury that these laws were working they have since been repealed. Texas, the great empire State, increased her railroad mileage from 3,244 miles in 1880 to 6,198 miles in 1884, a gain of 2,954 miles. Present indications point to great activity in railroad building in this State during the next year or two, but, considering the immense size of Texas and its enormous resources, it will be many years before the building of railroads is overdone in that State. The increase in mileage in Arkansas has been over 100 per cent.,—that State now having 1,764 miles of road against 859 miles in 1880. In Kentucky and West Virginia the increase has been about the same in each State, 356 miles in the former and 335 miles in the latter.

On the basis of \$30,000 as the average cost per mile of railroads, nearly \$300,000,000 were spent from December 31, 1880, to December 31, 1884, in building new railroads in the South. This, however, does not by any means represent the full amount of money expended during that time in the development of the railroad interests of the South. An immense amount of Eastern and foreign capital as well as local capital has been put into the purchase of old railroads which have been greatly improved, and the amounts thus expended would very largely swell the aggregate investments in the development of the railroad system of the South. A good idea of the magnitude of all this expenditure can be seen from an examination of the aggregate of stocks and bonds of Southern railroads in 1880 and 1884. This information is presented in Poor's Railroad Manual from official sources, and from that we gather the following:

The total capital investment, including stocks and bonds of Southern railroads in 1880 and 1884, compares as follows:

States.	1880.	1884.
Maryland.....	\$ 92,992,617	\$ 84,899,208
Virginia.....	197,864,010	119,831,946
North Carolina.....	41,613,342	32,739,859
South Carolina.....	44,614,326	32,855,618
Georgia.....	88,219,190	55,517,342
Florida.....	36,598,300	7,443,000
Alabama.....	73,013,319	69,222,157
Mississippi.....	20,593,101	10,062,340
Louisiana.....	79,314,600	43,820,139
Tennessee.....	156,259,325	44,823,743
Texas.....	256,018,346	104,376,797
Arkansas.....	41,940,456	19,736,593
Kentucky.....	170,559,413	88,225,486
West Virginia.....	27,236,883	6,188,321
Total.....	\$1,326,637,228	\$719,673,249

Increase from December 31, 1880, to December 31, 1884, \$606,963,979.

The railroad property of the South, according to these official figures, represents an investment of \$1,326,637,228, an increase of \$606,963,979 since 1880,—a stupendous gain that is well worthy of universal attention. The actual cost of these roads and their equipments is \$1,237,408,051 against \$679,804,828 in 1880, an increase of \$557,603,223.

Thus, in these four years under review, the actual cost of the improvements of Southern roads and the building of new roads in the South reached the enormous total of \$557,603,223. Is it any wonder that the South is growing prosperous?

The number of miles of steel rails in the South in 1880 and 1884 was as follows:

States.	1880.	1884.
Md.....	1,082.28	237.72
Va.....	2,687.89	2,210.97
N. C.....	1,938.23	546.25
S. C.....	1,563.55	757.43
Ga.....	2,977.55	1,501.08
Fla.....	1,324.19	943.29
Ala.....	2,190.96	960.12
Miss.....	1,843.94	244.04
La.....	1,315.85	1,128.00
Tenn.....	2,165.98	1,628.77
Tex.....	6,198.10	2,136.68
Ark.....	1,764.16	283.00
Ky.....	1,886.54	1,600.00
W. Va.....	1,026.48	997.09
Total.....	29,965.70	14,494.44

In 1880 the South had only 4,226 miles of steel track, or about one-fifth of her total railroad mileage, while at the present time there are 14,494 miles of steel track, or, in other words, a little over one-half of the South's railroad mileage is now laid with steel rails. There are still over 14,000 miles of iron track that must, in the natural course of events, shortly be relaid with steel.

The Southern railroads now have in operation 4,000 engines, 2,358 baggage cars, 953 special cars and 93,961 freight cars.

NOTICING the failure of the Princeton Cotton Factory, the Athens Chronicle says:

"The machinery is of the oldest pattern, and it has found great difficulty in selling goods as low as factories furnished with improved machinery."

It is useless for manufacturers to hold on to old time machinery and expect to compete with those who use the best and latest improved machinery. Failure is sure to be the result. It is often a fortunate day for manufacturers when they decide to use the best machinery to be had.

CORRESPONDENCE relating to the manufacturing, mining, lumbering and all other material interests of the Southern States is solicited. Reaching so many capitalists in all parts of the United States seeking profitable investment in the South, the MANUFACTURERS' RECORD offers an excellent chance for the people in that section to place the advantages of each locality before those likely to be interested. We will take great pleasure at all times in telling what has already been accomplished in the South, and showing up the opportunities of doing still more.

#### Literary Notices.

HOW TO BECOME QUICK AT FIGURES. Boston: The Woodbury Company. Price \$1.00.

This is the name of a very valuable book of about 150 pages. As stated by the publishers, "It is not a so-called 'Lightning Calculator,' made up of improbable examples with figures to fit, but containing without pretense to authorship, a valuable collection of rules and suggestions, giving the shortest, quickest and best methods of every day business transactions."

The book will prove of much value to anybody, and contains much that will be new to the best accountants. Familiarity with the principles and rules here set forth, will save a vast amount of time now wasted in tedious calculations.

#### Our Birmingham Letter—An Export Trade for Alabama Coals.

[Special correspondence BALTIMORE MANUFACTURERS' RECORD.]

BIRMINGHAM, ALA., Nov. 9, 1885.

It is very possible that readers who do not happen to enjoy the distinction of residence in the Mississippi Valley, may not feel such a degree of interest in the improvement of two or three small Alabama rivers as to keep them awake o' nights worrying over the question, and, therefore, perhaps I owe them some apology for writing so much on the topic. All the same, it is a matter of the greatest importance to this State and to the interests of the lower Appalachian coal field that some means should be found and adopted to overcome the present difficulties, in the way of getting Southern coals to gulf ports cheaply enough to warrant the foundation of an export coal trade. Norfolk, as we learn from the MANUFACTURERS' RECORD, has succeeded in building up such a trade, and is already doing a promising business with the West Indies; but I do not know of any Southern port below Norfolk that has been so fortunate. This is not because the effort has not been made! During the past year an experimental cargo of Alabama coal was sent to Barbadoes, but the cost at tide-water, and the expense of handling and loading were too much to make the venture profitable, and, as a matter of fact, it produced a loss. Then another attempt was made to land our coals at the Isthmus of Panama, but the Panama Railway Company is in the coal business, with the uncomfortable coincidence that it owns the only landing facilities, so that attempt came to naught.

Still there is a market for coals in several foreign countries that are now supplied from England and Nova Scotia, both sources being much more remote from the consumer than our mines would be, and it is hard to believe that the South can not turn the corner and reach them. At present it would be next to impossible to put coals on board ships in the harbors of either New Orleans or Mobile at less than \$3.50 per ton. Even at this figure it would appear practicable to compete for the Brazilian trade, since a full cargo of, say 1,200 tons, ought to be sent out at not to exceed \$3.50 per ton, freight, charges, insurance and customs duty. That would make the commodity cost \$7.00 on board in the harbor of Rio de Janeiro, where it is quoted worth from \$8.00 to \$11.00, according to supply. But as matters stand the margin is yet too small to chance it; there are too many of the "little things without a name" that never appear in an estimate, but always materialize in an account sales, to make the trade safe unless we can land the coals at tide-water on better terms than have yet heaved in sight. On the basis of railway transportation Alabama coals have made their way in New Orleans against Pittsburgh, and it is probable that at current rail rates the Pennsylvania operators are without material advantage in that market. If they have any it is likely to disappear under the operation of new conditions at Pittsburgh, and these conditions are perhaps worthy of a little notice.

Formerly, and until a very recent time, the Pittsburgh coal producers had an extremely advantageous position in the trade, being able to dispose of their screenings to the industrial establishments at home and at profitable prices, while they had a reliable and large market for their higher grades at New Orleans. The profit on the slack and screened coal always made it possible to mark down prices on lump whenever it appeared necessary to meet competition. But natural gas has knocked the life out of slack and screenings, and the producers must hereafter largely depend upon their lump sizes alone for revenue. That being the fact, I do not see how higher figures for

Pittsburgh coal at New Orleans are to be avoided another season; and if higher figures ensue Alabama coals will reap a heavy advantage. They are growing rapidly in popularity as it is, and the demand for Cahaba, Montevallo and other superior grades is steadily improving. But the competition is for the local consumption of the Crescent City and the ocean steamer coaling trade. Neither Pittsburgh nor Alabama has yet been able to enter the field for foreign trade against the English or Nova Scotian mines. It is not probable that Pittsburgh will ever be able to, or would essay to, by way of New Orleans, and whether or not the same statement is to apply to Alabama depends entirely upon our ability to cheapen the cost of transportation so that coals can be put on board ship at from \$2.00 to \$2.25 per ton.

A good many worthy and earnest people fancy that they have a solution of the whole matter, in the proposition to improve the Tombigbee and Warrior rivers as near the mining regions of the Warrior coal basin as Tuscaloosa. I am told that some engineers regard the scheme—supposing Congress will father it and furnish the money—as entirely feasible. As far as I am able to judge, however, the doubting Thomases among the experts in that sort of thing considerably outnumber those who think it practicable. The Warrior is reported to be full of rock shoals, crooked and treacherous, and, what is important, very short of water during several months of the year. The Tombigbee, at least above Demopolis, does not enjoy a vastly better reputation, and I do not find, among experts, much hope that the proposed improvements will be undertaken, after the government engineers have looked over the ground thoroughly. The movement to secure a liberal appropriation from the government will be none the less earnest, and the honored constituents at home will be apt to make it lively for the State delegation in Washington if the wealth be not forthcoming, when the next river and harbor bill goes through Congress.

Whether the Waterways Convention, to meet at Tuscaloosa next week, will consider it or not I cannot predict, but there is a cheap and easy way to put some of the best coals of Alabama into New Orleans. From the Cahaba Mines, at Blocton, in Bibb county, across country to the East Tennessee and Virginia line is only 20 miles, and that link can doubtless be built and equipped for a matter of \$350,000 or less. From the point of probable junction, by the East Tennessee & Virginia, to Selma is only fifty miles, and from Selma to Mobile there is water navigation the year round. Thus, the building of a 20-mile link would settle the question as far as Mobile may be concerned, in securing a cheap coal supply. Mobile is very much concerned and wrought up about the matter in general, but the excitement has never extended to the neighborhood of any prospect of investment. Mobile is rather waiting for some one else to take the risks and furnish the capital; and that same expectant but inactive attitude, persisted in with religious patience, may possibly account for the quiet that reigns over the single Alabama city by the sea.

It seems queer that there is again nothing in the way of change to note in the iron market here. One leading furnace still holds out for better prices, and all decline to sell in advance of production. Quotations are as last reported. Work on the new furnaces progresses. Sloss No. 1, which has been out of blast for repairs, will go in again within the next ten days. The demand for foundry and mill irons is steady, and especially strong from the East. Bar and other rolling mill products are firm and unchanged. Several new industrial projects are talked of this week, but are not yet in form tangible enough for discussion.

G. B. W.



## \* Brief History of the American Iron Industry.

BY JAMES M. SWANK.

The iron industry of the United States has an interesting colonial history, having been established in nearly all the original thirteen colonies. There is no evidence that the aboriginal inhabitants of either North or South America had any knowledge of the manufacture or use of iron.

The first recorded discovery of iron ore within the limits of the United States was made in North Carolina in 1585, exactly three hundred years ago, by the expedition fitted out by Sir Walter Raleigh, and commanded by Ralph Lane, which made in that year, on Roanoke Island, the first attempt to plant an English settlement on the Atlantic coast.

The first attempt to manufacture iron in the American colonies dates from 1609, in which year the Virginia Company of London sent a number of skilled iron workers from England to Virginia to "set up three iron works" in the colony. These iron works were "set up" during the next three years, but before they had made any iron they were destroyed by the Indians in 1622, and no further attempt to manufacture iron in Virginia was made for many years.

In 1643 the first successful iron enterprise in the colonies was undertaken at Lynn, in the colony of Massachusetts Bay, by "The Company of Undertakers for the Iron Works," composed of eleven English gentlemen and a few enterprising colonists. This enterprise embraced a blast furnace and foundry for producing castings and "sowe iron" and a forge for refining the "sowe iron" into "barr iron." The furnace was in operation in May, 1645, and the forge was in operation in September, 1648. These dates may be accepted as definitely determining, respectively, the first successful attempts in this country to make iron in a blast furnace and to produce bar iron in a refinery forge from the cast iron of the furnace. "A small iron pot, capable of containing about one quart," was the first article cast at the furnace. In 1844 this pot was in the possession of Mrs. Lewis, of Lynn, who was a lineal descendant of Thomas Hudson, the first owner of the lands on Saugus river, on which the iron works were built. Bog ore was used at the Lynn iron works.

From the time of the establishment of the works at Lynn, the colonial iron industry made steady although slow progress. The wants of the colonists for bar iron and castings were in large part supplied by colonial works from this time forward, but nails and other articles of iron more advanced in manufacture than bar iron and castings were still obtained chiefly from the mother country.

The furnaces supplied pots, kettles, and irons, stoves, clock weights, and similar articles, which are now supplied by foundries, while the forges supplied wrought iron for horseshoes, wagon tires, harrow teeth, and some of the nails that were needed. Some of the forges refined the "sowe iron" or pig iron of the furnaces, but the most of them made bar iron and other forms of wrought iron directly from the ore. The latter were Catalan forges of substantially the same type as the Catalan forge which had been in use in Europe since the beginning of the Christian era. As yet the rolling mill had not been invented, and all wrought iron was hammered into shape under tilt-hammers and trip-hammers. Bog ore was generally used in New England in colonial days, but in the other colonies rock ores were chiefly used.

The power used in blowing the colonial furnaces and forges was usually supplied by water-wheels which urged large leather-bel-

lows, formed like ordinary blacksmith's bellows, or else upright wooden cylinders, or "tubs," worked with pistons. Another application of power was obtained by the use of the *trompe*, or water blast, an ingenious contrivance of Italian origin, which carried a small stream of water down a long perpendicular box, or hollow log, the water in its descent sucking in air through one or more apertures, which air passed out at the bottom with considerable force, while the water, through the intervention of splatter board, flowed out in another direction. This water blast was much used in New Jersey and North Carolina, but it was not received with much favor in any of the other colonies. After the Revolution it was introduced into Tennessee, and in this and some other Southern States it may yet be found supplying the blast for a few primitive forges which make bar iron directly from the ore.

The fuel used in the colonial iron manufacture was exclusively charcoal. No other fuel was used in the manufacture of iron in this country down to 1827, when anthracite coal was first used at Phoenixville, Pennsylvania, in the puddling furnace. About 1840 we commenced to use anthracite and bituminous coal in the blast furnace.

In 1717 the colonies began to export to Great Britain small quantities of bar iron, and in 1728 the exportation of pig iron to Great Britain also commenced. Shipments of bar iron and pig iron to the mother country were continued almost yearly down to the Revolution. The exports in no one year exceeded 2,500 tons of bar iron, nor greatly exceeded 6,000 tons of pig iron. This export trade was wholly due to the scarcity of charcoal in Great Britain for the manufacture of iron in its coarser forms, the use of bituminous coal as a substitute for charcoal having just commenced in that country and not being perfectly understood or generally favored.

For a hundred years after its settlement in 1620 Massachusetts was the chief seat of the iron industry in the colonies, but about the middle of the eighteenth century Pennsylvania became the leading iron-producing colony, and this distinction it has ever since maintained.

At the beginning of the Revolution nearly all the colonies were actively engaged in the production of iron. Georgia was the only colony that did not at this time produce even small quantities of iron. During the long struggle for independence the colonies produced iron in sufficient quantities to supply their armies with cannon, cannon balls, muskets and camp kettles, and they manufactured also most of the steel that was required for swords and bayonets. All the steel made during the Revolution appears to have been blister steel. Henry Hollingsworth, of Elkton, in Cecil county, Maryland, was one of the manufacturers of muskets for the Continental army. Some of his bayonets were complained of as being too soft, "which he ascribed to the bad quality of American steel with which they were pointed."

After the Revolution the manufacture of iron in the United States was extended from the Atlantic coast into the interior; but the aggregate production of the country did not greatly increase for many years, owing partly to the depressing effects of foreign competition, partly to the slow growth of the country in population, and partly to the really restricted use of iron in the days before the introduction of railroads. The railroad era in the United States had its beginning about 1830, but even after the new demand for iron for railroads had been created in our country the influence of foreign competition operated for many years to prevent an active development of our iron industry. This activity was reached at the beginning of our civil war in 1861, the Morrill tariff of that year and the war itself co-operating to create a greatly increased demand for iron of domestic manufacture, and contributing greatly to the establishment of the steel in-

dustry, which had previously existed under precarious and wholly embryonic conditions. A tremendous mechanical revolution in the production of steel has combined with other influences to increase a thousand-fold the production of American steel. The world has not yet learned to attach deserved importance to the inventions of Bessemer, Mushet and Siemens, because it has become too much accustomed to thanklessly receive every new invention as a matter of course and to accept its fruits as a matter of right.

The number of persons directly employed in 1880 in the production of iron and steel in this country was 140,978. This total does not include the labor employed in independent and often remote mining operations, which supply our iron and steel industries with ore and coal and other raw materials. Nor does it include any considerable part of the labor employed in the transportation of raw materials from the sources of production to the places of consumption.

Rapid as was the growth of our iron and steel industries in the decade between 1870 and 1880, a yet more rapid and really phenomenal growth took place in 1881 and 1882. In 1881 we produced 4,641,564 net tons of pig iron and our total production of iron and steel was 9,149,009 tons. In 1882 our production of pig iron was 5,178,122 net tons, and our total production of iron and steel was 9,708,341 tons. In 1883, however, a reaction occurred, and in that year the production was less than in 1882, while in 1884 it was less than in 1883. In 1885 it will be a little less than in 1884.

## Ellison's Annual Cotton Report.

The Commercial and Financial Chronicle has received per cable the results contained in Mr. Ellison's annual cotton report for the year ending October 1, 1885, which was issued in Liverpool last week. In addition to the figures for the present year the revised totals for last year have been cabled us and are given below; we add also the figures for 1882-83 for comparison. First are given the spinners' takings in actual bales and pounds for the three years, with the average weight of bales for each season, as follows:

	For 1884-85.	Gr. Britain.	Continent.	Total.
Tak'g spin'rs.	3,055,000	2,961,000		6,016,000
Av. w't bales.	445	443		439
Takings in lbs.	1,359,475,000	1,284,113,000		2,643,588,000
For 1883-84.				
Tak'g spin'rs.	3,388,000	2,975,000		6,363,000
Av. w't bales.	499	421		495
Takings in lbs.	1,452,320,000	1,258,678,000		2,704,998,000
For 1882-83.				
Tak'g spin'rs.	3,496,000	3,447,000		6,943,000
Av. w't bales.	449	423		433
Takings in lbs.	1,574,292,000	1,460,000,000		2,974,292,000

According to the above, the average weight of the actual deliveries in Great Britain this year has been 445 pounds per bale, against 429 pounds last year and 442 pounds the previous year. The continental deliveries average 433 pounds, against 421 pounds last year and 423 pounds the previous year. But the significant fact that these totals indicate is that the takings are this year 61,408,000 pounds less than in 1883-84, and 330,704,000 pounds less than in 1882-83. In the following table are given the stock held by the mills, their takings and their consumption in each of the three years, all reduced to bales of 400 pounds. In this form the reader can see at a glance the decrease in each item, from year to year, both in Great Britain and on the Continent. The amounts are given in thousands:

	1884-5.	1883-4.	1882-3.
Great Britain—			
Stock Oct. 1 (beginning year).	89	124	82
Deliveries during year.	3,399	3,631	3,786
Total supply for year.	3,488	3,755	3,868
Total consumption for year.	3,447	3,666	3,744
Stock Oct. 1 (end of year).	41	89	124
Continent—			
Stock Oct. 1 (beginning year).	153	401	134
Deliveries during year.	3,910	3,431	3,647
Total supply for year.	3,962	3,532	3,781
Consumption during year.	3,924	3,380	3,380
Stock Oct. 1 (end of year).	138	152	401

The totals for the whole of Europe for the three years are as follows (in bales of 400 pounds) 000's omitted:

	1884-5.	1883-4.	1882-3.
Gr. Britain and Continent—			
Stock Oct. 1.	241	524	216
Deliveries during year.	6,609	6,762	7,433
Total supply.	6,850	7,287	7,649
Total consumption.	6,671	7,046	7,124
Stock Oct. 1 (end of year).	179	241	524

We have in the foregoing a loss in consumption almost as marked as was the growth during the years previous to 1882-83, that being the season in which the expansion of this industry culminated. Making the comparison with that season, Europe seems to have decreased its consumption 453,000 bales (of 400 pounds each) in the two years. To present a brief history of this industry in Europe we give the following consumption figures since 1878. Amounts given in thousands:

	Consumption.	Gr. Brit'n.	Continent.	Total.	Inc.	Dec.
Bales of 400 lbs.						
1878-79.	2,843	2,596	3,439	6,888		
1879-80.	3,350	2,750	3,100	9,200		
1880-81.	3,572	2,956	6,528	12,056		
1881-82.	3,640	3,198	6,838	13,676		
1882-83.	3,744	3,380	7,124	14,248		
1883-84.	3,666	3,380	7,046	13,892		
1884-85.	3,447	3,224	6,671	13,342		

With regard to the coming year, we also have by cable Mr. Ellison's estimates both of supply and consumption. As to supply he adopts for American cotton the estimate of the Agricultural Department that the crop in the United States will be 1,000,000 bales larger than the last one, or say 6,750,000 bales. After assuming that as the yield, he allots to Europe out of it 4,650,000 bales, against 3,900,000 bales in 1884-85 and 3,855,000 in 1883-84. From India his estimate of Europe's imports is 1,500,000 bales, against about 1,000,000 bales in 1884-85 and 1,687,030 in 1883-84. From other ports he estimates the imports at 400,000 bales, which would be about the same as for the past year. In this way, having made up a supply of 7,010,000 bales of the ordinary weights, he estimates the total consumption at 6,550,000 bales. The figures for the three years would then compare about as follows. These are all bales of ordinary weights:

	Estimated.	Actual.	Actual.
European.	1885-86.	1884-85.	1883-84.
Imports from America.	4,650,000	3,900,000	3,855,310
Imports from India.	1,500,000	1,000,000	1,687,030
Imports from Egypt.	400,000	500,000	393,050
Imports from other countries.	400,000	400,000	472,720
Total supply.	7,010,000	5,800,000	6,408,110
Increased visible stocks.	460,000		44,940
Decreased visible stocks.		216,000	

Leaving consumption, ordinary bales.... 6,350,000 6,016,000 6,263,170  
Leaving consumption, 400 lb bales..... 77,000,000 6,671,000 7,046,000

\*The imports for 1884-5 are estimated for September, as the figures for that month have not reached us by cable. The totals are, however, substantially correct.

One cannot but be struck with the fact that Mr. Ellison's estimated consumption, as given above, in view of the result for the last year, is very liberal and must be made on the assumption of a material improvement in general business. But granting his figures will be reached, they still allow for an increase in stocks of 460,000 bales. In view of such facts as these, the sluggish market for cotton at Liverpool can be no surprise.

Our dispatch also contains the average weekly consumption as follows (in bales of 400 lbs.):

	Consumption per week.	1884-5.	1883-4.	1882-3.
Great Britain.		66,300	70,500	72,000
Continent.		62,000	65,000	65,000
Total.		128,300	135,500	137,000

—Commercial and Financial Chronicle.

THE Oldham Publishing Co., Winston, N. C., have recently fitted up a new press-room with increased facilities. They would like to receive catalogues and price-lists from manufacturers of gas engines.

ADVERTISERS wishing to reach manufacturers of all classes, mining companies, steel, iron and hardware dealers of the entire South, cannot find a better medium than the BALTIMORE MANUFACTURERS' RECORD. We are always prepared to furnish proof of our claims as to circulation.

\* Part of a Paper contributed to the Report for 1885 of Albert Williams, Jr., Chief of the Division of Mining Statistics, United States Geological Survey.



# CONSTRUCTION DEPARTMENT.

**WE PUBLISH, every week, a list of every new factory, of whatever kind, projected anywhere in the South; every railroad undertaken, and every mining company organized. This information is always fresh, and, by enabling manufacturers to correspond with the projectors of such enterprises before their supplies of machinery have been purchased, is of great value. Manufacturers will find it to their interest to read this department carefully each week.**

## ALABAMA.

Madison county, Ala., has decided by popular vote not to spend \$200,000 to build 125 miles of Macadamized roads.

Joe. Kaufman, Selma, Ala., has purchased necessary machinery for manufacturing candies on a large scale.

A Knoxville, Tenn., firm is corresponding with the city authorities of Opelika, Ala., with a view to erecting an ice factory.

The Demopolis Oil Co., Demopolis, Ala., are adding a large amount of new machinery to their oil mill and will increase their power by another engine.

McMillan & Son, Stockton, Ala., are improving their saw mill and adding new machinery.

J. W. Kilpatrick, Talladega, Ala., has sold his bone and corn mills to W. J. & J. O. Adams, who will move them to another site.

New machinery and boilers will be put in the Eagle Works, Talladega, Ala., owned by J. H. Bingham.

There is talk of an electric light company erecting a plant in Birmingham, Ala.

Work has been commenced on the water works at Montgomery, Ala., previously reported as to be built by A. H. Howland & Co., of Boston, Mass. Part of the machinery has been purchased.

W. A. Carney is building a large mill near Brewton, Ala.

## ARKANSAS.

The Kansas River Lumber Co. have purchased a site at Pine Bluff, Ark., on which they will erect a large saw mill. The machinery has been ordered. J. T. Rutherford, Pine Bluff, can give particulars.

## FLORIDA.

Martinez Ybor, previously reported as having purchased ground in Tampa, Fla., on which to erect a large cigar factory, has let the contract for building a brick factory, three stories, 50x100 feet, and a temporary frame factory, 42x140 feet, to C. E. Parcell.

Mr. Francis, of Ohio, contemplates starting a planing mill at Grand Island, Fla.

Dr. J. A. Cloud, representing the American Arc and Edison Incandescent Electric Light Companies, is in Jacksonville, Fla., with view to establishing electric light works. Negotiations for a site are now pending.

The Eustis Ice Factory, Eustis, Fla., has purchased new ice machinery.

H. M. Williams, H. D. Miner and others, Clay Springs, Fla., will build a saw and planing, and shingle mill.

The Thonotosassa, Alafia & Manatee Railroad has been chartered in Florida.

## GEORGIA.

George F. Montgomery, R. A. Campbell and others have organized at Brunswick, Ga., the Montgomery Georgia Pine Lumber Co., capital stock \$25,000, to manufacture and ship yellow pine lumber.

E. A. Withers will erect a steam saw mill on his farm near Canton, Ga.

The contract for erecting the new courthouse at Lexington, Ga., previously reported, has been let to Mr. McAfee at \$19,400.

It is reported that a stock company is being formed in Atlanta, Ga., to manufacture blacking.

Machinery has been erected at the mines of Judge Wilkes, near Grantville, Ga., and work begun.

A. G. Foster, of Newnan, Ga., is in Atlanta, Ga., for the purpose of organizing a stock company to manufacture and handle his patented level.

The machinery for the Columbus, Ga., Barrel Manufacturing Co., previously reported, has been purchased.

Gordon county, Ga., will build a new jail to cost \$4,500.

E. A. Withers is erecting a steam saw mill on his place, three miles from Canton, Ga.

E. F. McGee, West Point, Ga., will start a carriage and buggy manufactory.

## KENTUCKY.

A saw and grist mill will be located on Big Bone Creek, near Beaver Lick, Ky.

The Works of the Covington Wire Fence Co., Covington, Ky., reported last week as burned, will be rebuilt.

Overby, Wells & Co., Paris, Ky., contemplate moving their plug and tobacco factory to Lexington, Ky.

The Hodges Bros' tobacco manufactory, Henderson, Ky., is being repaired.

Jesse Merriwether has received the contract to rebuild the Asbury Chapel, at Louisville, Ky., at a cost of \$25,000.

Isaac Spillman is erecting a tobacco factory at Elkton, Ky.

G. B. Lewis will build a saw mill near Elkton, Ky.

Woolworth & Cowles will build a two story addition to their stirrup and whipstock factory at Columbus, Ky.

A. Rosenfeld is having his distillery, at Owensboro, Ky., repaired.

Ringo & Owen, Clinton, Ky., have sold their chair factory to W. W. Wallace & Owen Jackson.

Mr. Herndon, of Clarksville, Tenn., will, it is reported, build a tobacco factory at Organnette, Ky.

## LOUISIANA.

Hannon & Voss, Baton Rouge, La., have received the contract for erecting a hospital at Alexandria, La., to cost \$8,800.

## MARYLAND.

E. M. Eveleth, Centreville, Md., has sold his mill to J. H. Hall & W. L. Lowe.

Arthur & Burton are enlarging their carriage shops at Fork, Md.

## MISSISSIPPI.

The organization of a company at Yazoo, Miss., with capital stock \$15,000, to erect an ice factory, will soon be completed.

## NORTH CAROLINA.

The cotton factory of the Bynum Manufacturing Co., Bynum, N. C., has been purchased by J. W. Atwater for \$47,000.

Julius Lewis & Co., Raleigh, N. C., desire to correspond with manufacturers of steam drills.

The Carolina Coffin Factory, it is reported, will be established at company shops, N. C., to do a general wood-working business.

The Houston-Thompson Electric Light Co., previously reported as negotiating for the establishment of electric works in Charlotte, N. C., have arranged through their agent, Wm. C. Maxwell, to erect a plant; work to begin within three months.

## SOUTH CAROLINA.

Griffin & Morris, Pickens, S. C., will add a corn mill to their ginney.

A large amount of new machinery is being erected at the Haile mine in South Carolina.

## TENNESSEE.

J. W. Mayes is erecting a saw mill near Columbia, Tenn.

Carpenter & Brown, Columbia, Tenn., are overhauling and repairing their saw mill.

The saw mill of E. M. Newton, Pleasant View, Tenn., previously reported as burned, (loss \$3,000), is being rebuilt.

J. Adams & Bros. have received the contract to erect a \$100,000 building, four stories, for S. M. Winchester, Chattanooga, Tenn.

The J. B. Aldrich Co. has been chartered at Memphis, Tenn., to manufacture sewing machines and attachments.

D. Giles & Co., Chattanooga, Tenn., contemplate improving and enlarging their pipe works and doubling its capacity.

T. L. Burt of Flushing, N. Y., will buy timber land near Elizabethton, Tenn., and move a large saw mill from Flushing to cut the timber.

## TEXAS.

The Colorado Gas & Electric Light Co., previously reported as organized at Colorado, Texas, will, it is reported, erect gas works at once.

J. P. Johnson, previously reported as starting a brick yard near San Antonio, Texas, states that he will establish it at Calaveras, Texas; the name to be the Calaveras Brick Company.

The Farmers' Alliance is preparing to build a new flour mill at Cisco, Texas. Capital stock will probably be \$50,000.

Navasota, Tex., previously reported as figuring on water works, has decided by vote to have them.

The First Baptist Church will erect a \$50,000 building at the corner of Sycamore street and Patterson avenue, Dallas, Texas.

A new electric light company has, it is stated, been formed at Dallas, Texas.

A company, with capital stock of \$25,000, will be incorporated at Albany, Texas, to build a mill and gin. \$20,000 has been raised.

## VIRGINIA.

Repairs will be made at the old pump works, Richmond, Va., by Superintendent Bolling, to cost \$3,300.

James Martin, Salem, Va., will place steam power in his mill.

## BURNED.

W. K. Culbreth's gin at Pine Log, N. C. Loss \$15,000.

Isaac Boyd's steam gin at Cryer Creek, Texas. Loss \$4,500.

The Fayetteville Hotel, Fayetteville, N. C.; loss about \$40,000.

The flouring mill and cotton gin of Cook & Miller, near Greenville, Tex. Loss \$6,000.

A. E. Brady's gin, at Maysfield, Tex.

Mr. Heifles' gin at Leon Springs, Tex.

C. G. Bass's gin and engine at Marion, S. C.

The mill of Willis Cole at Bentonville, N. C.

A. P. Gordon's gin and mill at Granbury, Texas; loss \$6,000.

The steam mill and gin of E. G. Maul in Lowndes county, Ala.; loss \$3,000. Will be rebuilt.

Gin and grist mill of T. G. Nixon & Son, Madisonville, Texas.

The saw mill of Mr. McAnderson, near Marshall, Texas, destroyed by storm.

M. Codington's steam saw mill at Tows, Fla.

CHARLOTTE, N. C., November 8, 1885.

## Editor Manufacturers' Record:

I am organizing a company for the purpose of erecting an electric light plant in this city, but have not yet succeeded in securing a sufficient number of subscribers.

W. C. MAXWELL.

HUNTINGTON, W. VA., Nov. 5, 1885.

## Editor Manufacturers' Record:

I regret to report that neither Mr. C. P. Huntington or any other capitalist has yet given assurance of interesting themselves in the projected rolling mill and nail works here, and without such assistance I fear we will not get any.

D. W. EMMONS.

## Planing Mill Rebuilt.

PLEASANT VIEW, VA., Nov. 2, 1885.

## Editor Manufacturers' Record:

My saw and planing mill was burned on Oct. 14. I am rebuilding and will be running in a week or 10 days from this date.

E. M. NEWTON.

## Enlarging Works.

LOUISVILLE, KY., Nov. 4, 1885.

## Editor Manufacturers' Record:

We have been established here some time and recently the Arctic Test Oil Refinery sold out to the Kentucky Refining Company and the works have been very much added to and improved.

KENTUCKY REFINING COMPANY.

## New Coal Company.

CLARKSBURG, W. VA., Nov. 2, 1885.

## Editor Manufacturers' Record:

The Mount Clare Coal Company is a chartered organization in operation and is also in the milling and lumber business at Johnstown, Harrison county, W. Va.

THOS. A. TINNELL.

## Repair Shops.

SANFORD, FLA., Nov. 4, 1885.

## Editor Manufacturers' Record:

The J. T. & K. W. R. will have a round-house, repair shops, &c., on 6th street; also the same location will be used for the present by the S. & L. E. My authority is Col. Carter, chief-engineer J. T. & K. W. Can not tell how large or the number of hands.

J. W. WELLINGTON.

## New Brick Yard.

COTULLA, TEXAS, Nov. 3, 1885.

## Editor Manufacturers' Record:

We are opening a brick yard at Calaveras, P. O. Wilson county, 20 miles south of San Antonio. Have been shipping brick from this point (15 miles south of San Antonio) for 3 years. The plant at Calaveras will be named "Calaveras Brick Co."

J. P. JOHNSON.

## May Build Ice Factory.

NEW IBERIA, LA., Nov. 3, 1885.

## Editor Manufacturers' Record:

I have the erection of an ice factory here under advisement, but am undecided as yet. If anything is done you shall be promptly informed.

L. T. BELT.

## LOCKWOOD, GREENE & CO.

## MILL ENGINEERS

Office, 65 Westminster St., Providence, R. I.

Carefully prepared plans, specifications and estimates furnished for the construction, equipment and organization of new mills and the revision and improvement of old.



**New Wagon Factory.**

TYLER, TEXAS, November 2, 1885.

*Editor Manufacturers' Record:*

We will manufacture the J. M. Brosius patent adjustable channel axle wagons of all sizes. There is strong talk of a cotton and woolen mill being built here; it is a good location for it. First through passenger train went through to Lufkin yesterday, connecting with Bremond's road from Houston to Shreveport, La.

J. M. BROSIUS,  
Supt. Tyler Wagon & Manfg. Co.

MAYSVILLE, KY., Nov. 2, 1885.

*Editor Manufacturers' Record:*

We have bought the Adams Distillery, and will operate same by the first of the year.

J. H. ROGERS & Co.

**Machine Shop.**

EUFULA, ALA., Nov. 5, 1885.

*Editor Manufacturers' Record:*

Myself, with others, are about to open a machine shop in this city, for which part of the tools are already on the way, and the site secured.

S. S. WARD.

**New Cigar Factory.**

KEY WEST, FLA., October 29, 1885.

*Editor Manufacturers' Record:*

We are taking steps to establish a cigar manufactory in Tampa, Fla., of exactly the same character as the one we are running in this place.

N. MARTINEZ, YBOR & CO.

**Water Works for Seguin.**

SEGUN, TEXAS, November 2, 1885.

*Editor Manufacturers' Record:*

I have no doubt we will build the water works under the Seguin Water Works Company's charter; but, like many other enterprises inaugurated, it may fail, but I think we will have it in operation by next spring. We have not opened books yet, but have some \$4,000 of stock taken and over \$10,000 more spoken for.

W. E. GOODRICH, Pres.

CINCINNATI, OHIO, November 4, 1885.

*Editor Manufacturers' Record:*

The report that we intend to engage in the manufacture of ginger ale in Lexington, Ky., is an error.

THE WALKER BREWING CO.

**New Saw Mill.**

MOULTON, ALA., November 5, 1885.

*Editor Manufacturers' Record:*

I have built a good gin and mill, and have all in good trim and doing a good business.

W. T. SEAMENS.

**New Distillery.**

MAYSVILLE, KY., Nov. 6, 1885.

*Editor Manufacturers' Record:*

We are building a small distillery for making whiskey; capacity 140 bushels daily.

SAMUEL B. POYNTZ & SONS.

SEFFNER, HILLSBOROUGH CO., FLA.

November 2d, 1885.

*Editor Manufacturers' Record:*

We are at work putting up a building 32x65, two stories high, with engine room separate from the main building; it will be 24x36, one story.

THE BOWERING SOAP MAN'FG CO.

COVINGTON, KY., Nov. 3, 1885.

*Editor Manufacturers' Record:*

We have secured temporary quarters and are at work. Will rebuild as soon as we can conveniently.

COVINGTON PICKET WIRE FENCE CO.

**A New Flour Mill.**

CLARKSVILLE, TENN., Nov. 6, 1885.

*Editor Manufacturers' Record:*

We have purchased the City Mills and Elevator, and have entered into contract with Messrs. Richards & Butler, of Indianapolis, Ind., for a complete new roller mill of 125 barrels capacity—including engine, six double set of Stevens' Rolls, 3 Smith Purifiers, Hercules Scourer, Becker Brushes, new bolting chests, Richmond Bran Dusters, and the latest and best machinery throughout. Our contract calls for the equal of any mill of like capacity in yield and quality in the United States. We hold ample security for the faithful performance of all the conditions of the contract. The milling business in this section (although producing the finest wheat in America) has been very disastrous. It remains to be seen whether modern machinery and legitimate effort to make it a success will change the condition.

KENDRICK, PETTUS & CO.

**Wooden Ware Factory.**

SUNNY SIDE, GA., November 6, 1885.

*Editor Manufacturers' Record:*

I am building a factory at this place for manufacturing boxes and baskets for grapes, and peach crates, etc. The building will be 84 feet long by 35 feet wide, with an L on one side, 20 x 30 feet, for engine room, etc.; will erect storage sheds to pile stock in; will use a veneering machine; a shingle machine; a large saw mill; several planers; one bolting saw; one cutter for slats; one drag saw; several equalizers. Have most of this machinery on hand. There are large interests located around Sunny Side. This is the home of the grape, peach and plums; in fact all fruits do splendidly; good fruit land is worth from \$10 to \$20 per acre. This point is 35 miles south of Atlanta, Ga. The climate is fine, water good, and there is no better and healthier country anywhere.

A. G. VAN DYKE.

**The New South.**

The second New Orleans Exposition, which promises to open to-morrow, should surpass the success of last year's effort, since it involves far less expense and considerable more experience. No outlay was needed for buildings, for means of transit to the grounds, or for any of the costly preliminaries prepared last year. The mistakes of mismanagement inevitable to new undertakings of such magnitude will be avoided. The Exposition will be less expensive, more easily handled, more local, and more immediately remunerative to New Orleans and to the South.

Last year's lesson has been well learned. Nothing will be attempted that cannot be accomplished. With the South and some of the Western and Northern States and cities, Mexico and the Central and South American States will fairly show in the exhibits, while in New Orleans entire satisfaction with and confidence in the management enlist enthusiasm and strong local interest in the enterprise.

Primarily this Exposition will be indicative of the constantly improving condition of the Southern States. One of The World's staff, fresh from a rapid run through some of the cotton States to New Orleans and back, reports everywhere the evidence of prosperity. There is none of the old-time tumble-down look to the buildings and fences, but thrift on all the farms, with better cabins for the laborers, and better laborer—for there is less of that inherent indolence in the negro now that he is working for fair wages and for himself and family. All the railway stations were crowded with cotton in transit to the shipping centers, and miles of fields were still white with the unpicked staple. The crop this year is the largest ever grown,

and has been generally made without advances, which means less money for the factor and much more profit to the planter. The cane and other crops are exceptionally good this year, and no purely agricultural section in the Union is more prosperous than the South to-day.

All this means money, and money anywhere means much. And especially to the South, which is developing its mines, enlarging its manufactures, extending its railways and increasing its commerce.—New York World.

**Industrial Education in the South.**

No one except a fossil of the antediluvian age will doubt the necessity of industrial education at this period of the world's advancement. To perform the refined operations of the skilled mechanic of this generation with ease, speed and profit, the man must have training. So much of science is used in modern machinery, &c., that the mechanic needs to be instructed in its elements in order to work intelligently in any shop. The old apprentice system will not do for these times. It was always an unsatisfactory system, condemning the apprentice to too much drudgery and giving him too little and too limited real education or training. The history of other people shows that the industrial school must take the place of the apprentice system.

The first world's exhibition, in London, in 1851, opened the eyes of the English to the fact that continental nations, that had devoted attention to the higher technical education of their artisans, had distanced the English in the quality, style and economy of their goods. This revelation started the commercial Britisher, and one of the first effects of the awakening was the establishment of the Kensington industrial art schools, a movement since followed by the opening of technical schools in many parts of Great Britain and in many branches of industry.

This is what has recently been said upon this subject by no less an authority than Sir Lyon Playfair:

"All manufacturing towns throughout the kingdom must adapt themselves to the advancing competition of nations by a higher education of people engaged in industry. A taste for scientific study should be created in all primary schools, which could afterward in mechanics' and kindred institutions be applied to technics. The competition of the world has become a competition in intellect, and it is no use for a nation to possess raw materials and natural advantages if the intellectual condition of the artisans is below that of other nations."

In America the same lesson has been rapidly learned. States, towns, communities and even corporations have been multiplying manual training schools and technical institutes all over the North. It is needless to enumerate them. Your readers know they exist and are being added to continually all through the North and West. Are we of the South so differently situated that we need not this technical training? We might argue that we do need such trained men from, first, our changed condition in relation to labor since the war, and second, the magnificence of our undeveloped and unused crude material of all kinds, land, wood, cotton, &c.; but we desire to write on a different line this time. What, in fact, are the evidences that the South appreciates industrial schools? What are the Southern States doing to-day for technical and industrial education? Taking the broadest definition of an industrial school, as an institution where the normal exercises are taught in connection with the principles of science and mechanics in each department of work—a school with shops, in short—we submit the following information to Raleigh and North Carolina public:

The facts are subject to correction. They are compiled from the latest information we can get. There may be some local or private institutions in some of the States which we have not heard of. Strictly benevolent, reform and penal institutions are omitted as beyond the reach of the honest sons of well-to-do parents.

1. Southern States having industrial schools for white boys:

Maryland has two schools for white boys, not counting the naval academy.

Virginia has two institutions where manual labor is taught white boys, and one for colored.

West Virginia, one for whites.

Kentucky, two for whites.

Tennessee has two schools of this kind for whites.

Georgia has just made provision for a school of technology, on a fine basis.

Atlanta has an artisans' institute.

Alabama, one State school for whites.

Mississippi, one State school for whites.

Arkansas, one State school for whites.

Louisiana has two manual training schools for white boys.

Texas has one, at least.

2. States which have no industrial schools for whites: North Carolina, South Carolina, as far as we know; Florida, as far as we know.

North Carolina has, thanks to the benevolence of Northern men chiefly, two schools where colored boys receive manual training.

Some one has said that "the only manual training school in North Carolina for whites was the penitentiary." Alas, that the accusation is so true! North Carolinians! to which class of States do you wish your State to belong? You boast that yours is the most progressive State in the South. True in some matters! But you are behind in industrial education, if not in all kinds of education.

Is it not time you were looking to the interests of your boys who are not going to be lawyers, doctors and preachers?—Raleigh News and Observer.

**A Talk with the Carolina Central Officials.**

Col. Robinson, Major Winder and Col. Jones, officials of the Seaboard Air Line Company, spent Sunday at the Central Hotel, in this city, on their return from an inspection of the new railroad work between Shelby and Piney Ridge. They went as far as Mooresboro, and report everything working satisfactorily. In conversation with these officials, an Observer reporter was informed that there are now 400 hands engaged in grading the road bed for the Carolina Central extension, and that rapid headway is being made.

That no obstacles may be thrown in the way of the rapid completion of the extension to Piney Ridge, the present objective point, the Carolina Central officials have given the contract for an iron bridge to span Broad river, two miles from Shelby, to the well-known firm of bridge builders, the Phoenix Bridge Company, of Pennsylvania. This bridge is to be furnished as soon as the company is able to construct it, and will then be erected over Broad river without delay, so that there will be no gap to interfere with the running of material and construction trains along the line. The reporter was further informed that the Carolina Central Company has placed an order with the rolling mills for 3,000 tons of steel rails, to be furnished immediately.—Charlotte (N. C.) Observer.

ADVERTISERS wishing to reach the manufacturers of all classes, mining companies, steel, iron and hardware dealers of the entire South, cannot find a better medium than the BALTIMORE MANUFACTURERS' RECORD. We are always prepared to furnish proof of our claims as to circulation.

### Improved Band Scrolling and Resawing Machine.

The machine illustrated on this page is from the shops of the Egan Company, of Cincinnati, Ohio, who have designed it as a convenient and reliable combined scroll saw and resaw, and they claim that it takes much less time to change from one kind of work to another on this saw than on any other made, the whole feed mechanism being raised and lowered by means of a rack and pinion, and the table sliding back and forth on planed ways. The frame is hollow to better fit it to withstand the strain brought to bear upon it, yet keeps its weight in due bounds. The company has had long experience in building band saws of all sizes, and has incor-

porated in this machine many important improvements rendering it an economical tool for use in furniture and other factories. Some of these factories glue up their narrow stuff and then run it through this machine, thus effecting a plain saving in time and material. The cut gives a good general idea of the machine, which we will supplement with the following description from the company's catalogue:

It has strength and solidity for doing the work claimed for it, and the facilities for changing are so quick and perfect that it is, in a measure, always ready for either splitting or scrolling.

1st. It is a perfect scroll saw, having all the facilities and improvements for favoring the blade and doing the best work, from the

finest bracket to the heaviest plow beam, wagon or buggy work, planing mill, agricultural and furniture work.

2d. The table slides back on a planed surface, and a few turns of a crank (ratchet) raises the six rolls. It is then ready for splitting, and will split stuff up to 22 inches wide.

The rolls being self-centering, will center any board. Rolls can be beveled so as to split weather-boarding and any such work.

The changing from splitting to scroll work is very quick and simple, and can be changed by one man in not to exceed one minute. Three changes of feed are on the cones.

A fine Perrin blade is used on this machine, and it is astonishing the amount of

24 inches wide, and is a first-class re-saw only, and will stand up to first-class cutting and do fine work, and is always ready without any changing.

L. and T. Pulleys, 20 x 6½, should run 400 revolutions per minute.

For further information address The Egan Co., 228 to 248 W. Front street, Cincinnati, O.

### Submarine Tunneling.

The connection of Prince Edward Island with the mainland by means of a submarine tunnel, built according to the Hall patents, is being agitated. It is stated that such a tunnel could be built for about \$3,000,000, while to construct one according to the ordinary methods of work would cost about

wick shore before a depth of 30 feet of water is obtained. Within the 30-foot draft the ice in winter forms into what is known as *hard* or solid ice, which remains permanent during the winter.

The Prince Edward Island Railway at Cape Traverse runs out on a pier extending 2,000 feet from the shore.

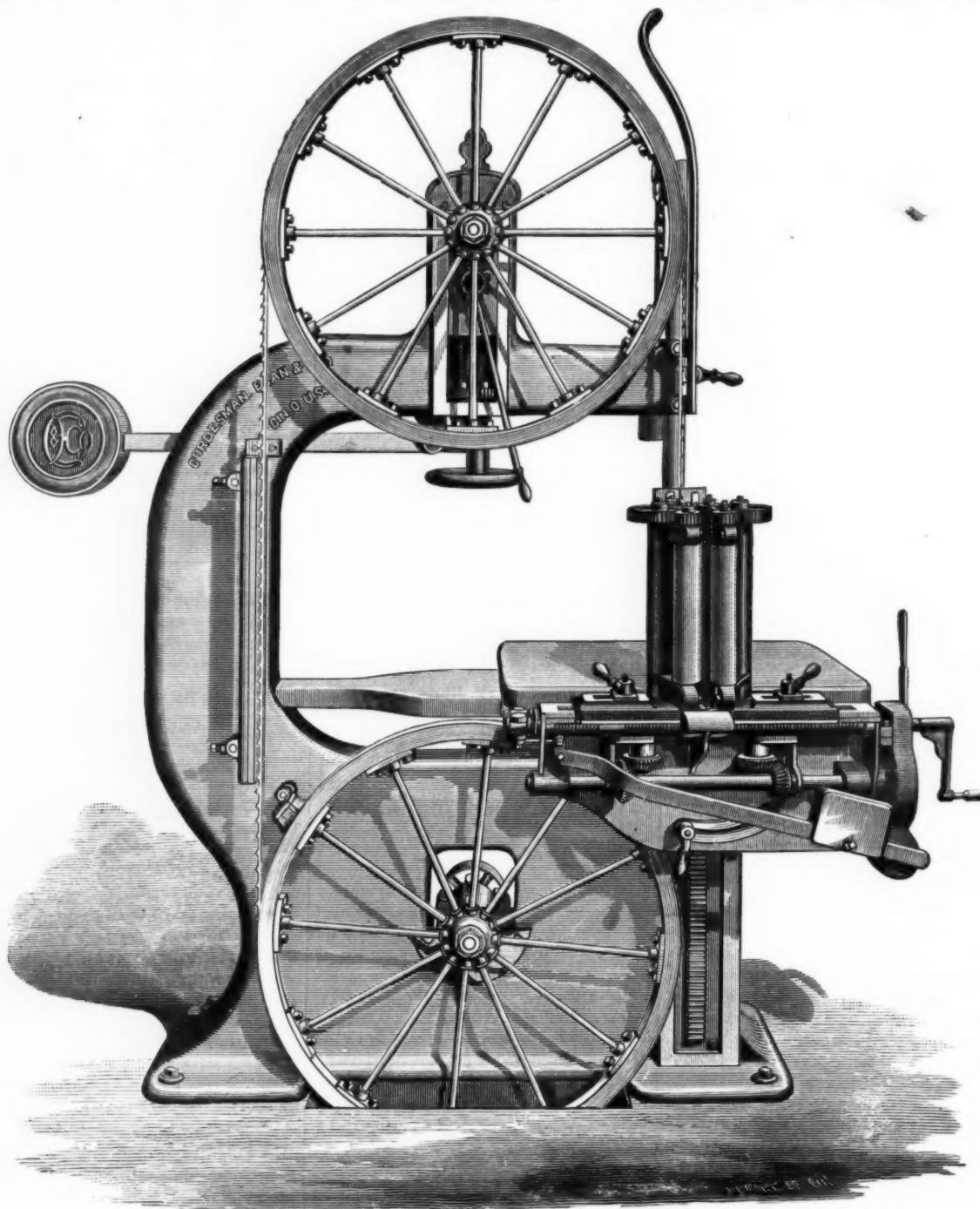
On the New Brunswick shore, at Cape Tormentine, the government have decided to build a pier for the New Brunswick & Prince Edward Railway, which will extend out into the strait some 3,000 feet. In constructing the subway it is contemplated to extend the piers already built on each side within 100 yards of the floating ice, thus reducing the length of the subway proper to about four miles.

The subway is built in sections, each ten feet long. The metal tube is 16 feet in diameter, which would give ample room for a railway of the standard gauge. It is built in five segments of a circle, the plates of which are of metal three inches thick, except at the flanges where the segments meet, where the thickness will be four inches. Equi-distant from the sides of each segment there is a strip called the shrinkage strip, which is six inches thick, to allow for the contraction of the tube. Each segment is fitted together with 2½ inch bolts, to be of a tensile strength of 1,200 tons. Each ten feet of the metal tube will weigh 25 tons, and be capable of bearing a crushing weight of 400 tons. The metal of which the tube will be composed will be anti-corrosive and lined on the inside with one foot of concrete. On the bottom the concrete will be 2 feet 8 inches thick, and into this the ties on which the track rests will be imbedded. When completed the tube will weigh 6½ tons to the foot.

In laying the subway the course will first be dredged out so that the top of the tube will be just level with the bottom of the straits, to prevent any possible injury from contact with the ice. The dredging will be a comparatively easy task, as the bottom for a depth of 12 feet is composed of sand, under which there is a strata of 60 feet of brick clay. The mode of constructing the subways under rivers has been greatly simplified by a recent patent obtained by Haden H. Hall, of New York. After the first two or three sections of the tube are completed a moveable caisson, which effectually prevents water getting into the tube, is fitted over the end. The caisson is made of three inch iron and shaped very much like a snow plough. It is 36 feet long, 26 feet wide, and 22 feet high. A clevis to which the anchor is attached is secured on the apex of the angle in front of the caisson, which has a flat bottom and can be floated at any depth or kept on the bottom by means of ballast. A funnel fifteen feet in diameter, and extending 15 feet above the water line, supplies ventilation and a portion of the light necessary in prosecuting the work.

The caisson receives the river end of the tube much in the same manner as the shaft of a steamer is run through the stern post to connect with the screw, or as a stovepipe fits into a chimney hole. At the orifice where the tube or tunnel enters the caisson it is surrounded with rubber packing, which renders it perfectly water-tight. The end of the tube is thus effectually sealed, and the work of construction can go on inside the caisson without interruption. The interior of the marine workshop is fitted with four 1,000 horse power hydraulic jacks, a 12 horse power air engine, four hydraulic lifting cranes; and all the necessary tools of a mechanical workshop. The roadway in the tunnel is completed as the work advances, and can be utilized in bringing the material for the tunnel into the caisson. As each ten-foot section is completed the caisson is moved ahead by means of the hydraulic presses, and thus the work progresses until the river or strait is crossed.

It is thought that the strait can be crossed in two seasons. At the close of the first



NO. 4½ PATENT BAND SCROLL AND RE-SAW.

work that can be done on it; and the very fine "kerf" taken out recommends it specially to parties who wish to split lumber and hold it to its full size as nearly as possible.

Furniture and buggy factories, planing mills and carpenters, wagon and coach makers, agricultural implement manufacturers, bracket, chair, piano, organ and coffin factories, and all parties needing a saw for splitting lumber and scroll sawing, will find this a valuable addition to a factory, and supply a want long felt.

With each machine is furnished one 2-inch "Perrin" Saw for splitting, and one ¾-inch for scroll work.

No. 4½, for re-sawing only.—Use this same frame and leave off the large table. Made in this way, it re-saws lumber up to

\$12,000,000. Senator Howlan, in an interview with a reporter of the Daily Telegraph, St. John's, N. F., gave the following information:

"The project may be briefly described as follows: Through a practical survey of the straits from shore to shore, besides an examination of Bayfield's charts, it appears that the water in the straits varies in depth along the proposed route of the subway from about one to twelve fathoms. The sea bottom is almost level, with the exception of a very short distance near the New Brunswick shore. Owing to the shallowness of the water on each shore, piers can be built out from one to one and a half miles on the Prince Edward Island shore, and from two to two and a half miles on the New Bruns-



season the end of the tube would be made water tight, the caisson floated off and sunk to the bottom to remain there for the winter. The following spring the water would be pumped out, the caisson fitted over the end of the tube, and the work resumed as before. 'Now,' said the senator, 'I entered upon this thing without much knowledge of the subject, but since I have had it in hand I have laid the project before several engineers, who have pronounced strongly in favor of it. The gentleman who made the estimates was Mr. Vernon Smith, who, after a careful study of the project, pronounces it perfectly feasible. Mr. Walter Shanly, one of the foremost men of his profession, says, in a letter addressed to me after an examination of the plans and specifications in connection with the work: 'As for my own views, all I can now say is that I fail to detect any apparent reason why your idea should not come to be classed among the feasible projects of the engineering world. Mr. A. L. Light, C. E., Mr. James Brown, C. E., and a number of others equally competent to judge, have also pronounced in favor of the scheme.' As a practical man, though not an engineer, I am at a loss to see why the subway is not entirely practical."

## MINING NOTES.

By T. K. BRUNER, Salisbury, N. C.

### NORTH STATE MINE.

At the North State Mine in Guilford county, hydraulic work has been suspended. They are sinking the main shaft which has reached the depth of 370 feet. They are driving a level from near that depth to make connection with the second shaft.

### DAVIS MOUNTAIN MINE.

At the Davis Mountain Mine, in Randolph county, they are working a small engine and a little machinery. Besides this, some panning and hand rocking is being done, but the results are not made known.

### WININGHAM & SLACK MINE.

In the same county, is being worked by some Englishmen who have the property. They mean legitimate work, for they paid a small sum in cash for the lease, and besides, make another payment at the end of each month to the owners as long as the lease runs. The prospect is said to be very promising for good returns in the yellow metal. They are just now putting some machinery, including an engine, on the property. It is thought that these gentlemen will purchase the property if the developments continue as indicated by the present outlook.

### HOOVER HILL.

Work is progressing satisfactorily at Hoover Hill, now called New Hoover Hill, presumably to divert attention from the unfortunate "manipulation" of the sale and first year's operations. Their twenty stamps are stamping the gold from the ore with great regularity; there seems no rest. Day and night the roar of the battery breaks the silence of the otherwise quiet surroundings, but the "clean ups," scoring some \$6,000 or more a month, is ample remuneration for the noise. Supt. Freecheville reports ore broken during the month of October on the stope below the 170-foot north level to be of good quality. In the Hawkin's shaft, the winze below the No. 1 stope is down 36 feet. There has been improvement in the bottom, both in size and grade of "chimney" they are following. They have driven in No. 1 stope, 78 feet during the month, and have encountered some soft ore which is being followed. They are now hoisting ore from the "provo" shaft with the hoisting engines from the Broil's Shaft. The superintendent also reports to the London Mining World, Oct. 24, "September run, 20 stamps, 25 days, crushed 714 tons of ore, yielding 334.27 ounces of gold."

### DUNN'S MOUNTAIN MINE.

Captain James C. McCandless, Superintendent of the Dunn's Mountain Mine, in Rowan county, reports that he has cleaned the mill shaft to the depth of 140 feet, and that he has yet to clear and timber 60 feet before the mine is in condition for other work. This shaft was full, within 26 feet, of water when work was resumed in the summer. The plan for working the mine under this new management is as follows: When this mill shaft has been cleared, they will connect it with the main shaft 200 feet distant by rising on the incline. This will give them considerably more than 200 feet of stoping ground, and will enable them to put in a very large force of hands. The mine is equipped with a ten stamp mill, and a six inch Knowles pump keeps the water in fork.

In addition to the mining going on they are to be commended for utilizing the surface of the ground. They have raised this year 2,552 bushels of corn, ten bales of cotton, and 4,000 pounds of fine golden tobacco.

### HAILE MINE.

At the Haile, in South Carolina, they are making a change in their machinery. They are putting in the Blake system throughout. It consists of the Blake crushers and rolls, and will displace the machinery formerly used in reducing the ores.

### THE BREWER AND WEST

mines, in the same locality, are also doing fairly. These are the most prominent mines in South Carolina at work just now.

### NORTH CAROLINA COAL FIELDS.

Dr. H. M. Chance has made his official report of North Carolina coal fields to the State Department of Agriculture, under whose auspices he was engaged to do the work. There are two locations, or "fields" as they are called, in North Carolina where coal is found, and Dr. Chance's observations have been confined to these. Of the Dan river locality he says, that from all the facts gathered in his examination of the district, it seems certain that it will be entirely useless to expect to find workable coal beds. The small seams of coal found are local deposits, and altogether unreliable. But of the Deep river district he is more hopeful. He speaks of an area between Farmville and Gulf, (in Chatham county), a distance of four and a half miles, where two beds of coal exist that may be considered workable, not over all the area, but subject to the occurrence of deteriorated patches, in which the beds are poor and thin. But what he seems to regard as the most promising area is that lying between the openings on the Taylor place and Egypt. He does not grow enthusiastic, but urges that the "prospects are sufficiently encouraging to warrant a thorough exploration of each individual tract by the land owners." His report is an exceedingly valuable paper, since he goes into geology and compares the Mesozoic as a Carboniferous formation, with like formations in America and India.

### Automatic Tapping Machine.

E. E. Garvin & Co., of 139 and 143 Centre street, New York, present the cut of an improved automatic tapping machine for work under 5/8 inch diameter.

It appears that in running this machine the operator's only duty lies in starting the tap into the work by depressing the hand lever shown in the illustration. This act throws the feather, which slides in a slot in the spindle, into the right or forward moving clutch. The tap is then followed up by the hand lever until it has secured a firm start in the work. The hand lever on being released is brought against the trip hook by the ball weight seen at top of machine, which lifts the feather into the reverse clutch when the spindle has sufficiently advanced to bring an adjustable cone against the hook to trip it off. When the tap has run out of the hole

it is lifted clear of the work by a counter-balance weight hanging inside of column.

It will be seen by reference to the cut that the counter shaft is a part of the machine proper, so arranged as to allow the belt shifter for starting and stopping the machine to be operated by foot motion entirely.

The round table of this machine is 24 inches diameter, constructed so as to swivel on its own center or to swing on the axis of the column, upon which it has a long vertical adjustment operated by lever through rack and pinion movement. The rim of this table forms a groove for oil communicating through the radial T slot with the central hub, which is made extra large and cored



AUTOMATIC TAPPING MACHINE.

out for an oil reservoir. Oil can be drawn off by means of the cock underneath. When necessary to use large quantities of oil a pump is connected.

The machine is designed to allow the operator the entire freedom of his hands for holding work in light tapping or swinging the table in heavier cutting. The least possible responsibility is put upon the operator where an automatic trip and return are employed. Work will be of a uniform depth and quickly and squarely done.

The machine is driven by a two and one-half inch belt over cones, allowing three changes of speed. The weight of the machine complete is 675 lbs.

## THE MARKETS.

OFFICE MANUFACTURERS' RECORD,  
BALTIMORE, NOV. 11, 1885.

We note a continued improvement in the demand for manufactured iron, with a decided increase in business. Prices remain unchanged, viz:

Ref. Bar Iron, 1 to 6x3/4 to 1.....	1.80	a	c
" " 1 to 4 1/2x1 1/4 to 1.....	1.80	a	c
" " 3/4 to 2, round and.....	1.80	a	c
square.....	1.80	a	c
Hoop Iron, 1 1/2 wide and upward.....	2 1/4	a	c
Band Iron, from 1 1/2 to 6 in. wide.....	2 1/4	a	c
Horseshoe Iron.....	2 1/4	a	c
Norway Nail Rods.....	5	a	c
Black Diamond Cast Steel.....	9	a	c
Machinery Steel.....	3 1/4	a	c
Spring Steel.....	3 1/4	a	c
Common Horse Nails.....	8	a	c
Railroad Spikes, 5/8x16.....	2	a	c
Boiler Tubes.....	57 1/2	a	c

There is no material change in the pig iron market. The demand is fair for immediate use, and prices range about as follows:

Baltimore Charcoal Wheel Iron (all Baltimore ore).....	26 00	@	27 00
Virginia C. B. Charcoal Wheel Iron.....	26 00	@	27 00
Anthracite, No. 1.....	18 00	@	19 00
" " 2.....	16 00	@	17 00
" " 3.....	14 00	@	15 00
" Mottled and White.....	13 00	@	14 00

## HARDWARE.

The hardware trade is fair, with some indications of a small advance. A fair showing of orders is being received from the South. The local trade is very good.

Nails are firm at \$2.75@2.85 and in good demand, with every prospect for a further demand.

## Philadelphia Iron Market.

PHILADELPHIA, November 10, 1885.

The crude iron market has developed some little improvement in forge and in several brands of No. 1 Foundry. Prices are \$15.50 and \$18.50 respectively. Outside of these there is no improvement. Heavy sales are reported in Western Pennsylvania, but there seems to be no reason for apprehending very much activity in Eastern markets. One reason is that production is increasing, and consumers will therefore look for lower prices, unless the demand for finished products should be exceptionally large. The Glendon and Andover people are holding their advance very firmly. Special brands may possibly advance a little. Some of the merchant iron makers are extremely busy. Two or three firms have taken large orders, and have done more business within the past week or two than they have done within the past month or two. At the same time manufacturers are anxious to secure business, and it is not impossible to secure favorable terms even yet. The bar men are traveling in the direction of firmer prices. Quotations are still \$1.50 to \$1.80. In nails a repetition of what has been said is the only report possible. We are looking to Cincinnati this week to see what will be done there, but so far as private advices go, it looks as though manufacturers would trust to the Eastern mills and to the increasing production in the Wheeling district. Prices are, of course, very firm here, as everywhere else, and consumers here are obliged to put up with just what they actually need. Plate iron has been selling in 50 to 100-ton lots at old figures, and tank is under somewhat better inquiry, to fill requirements for two or three important enterprises under way. A. & P. Roberts are negotiating for the Huntingdon Car Works, and will probably purchase them and remove them to this city. Muck bars are selling at \$27 to \$27.50. Merchant steel is in very active request, and in fact business in all kinds of steel has not been as active for a long time past, but all manufacturers are complaining of very low prices. Everything in the steel rail market is as favorable as it has been, although perhaps not quite so much business has been transacted during the past week. Prices are \$31 to \$32.50. Manufacturers are pretty well sold up, and those who need large lots are unable to find ready takers. Sheet iron and wrought pipe are very active and everything is sold up. Stocks are low. The outlook for the winter is better than it was a month ago, and hence prices all around are quite firm. Manufacturers are not expecting any change in prices until after the holidays. They hope between this and then to pick up enough orders to justify them in their effort to do better. There is a great deal of inquiry for old rails and good No. 1 scrap; both are hard to get. The Morgan Iron Works, of New York, opened to-day with 200 men. 300 men were set to work to-day at John Roach's ship-yard at Chester to complete the vessels in hand, under governmental supervision.

## Cincinnati Iron Market Report.

Specially reported by ROGERS, BROWN & Co., Pig Iron Commission.

CINCINNATI, Nov. 9, 1885.

A strong market, with a good average demand for early delivery, describes the condition in general terms. Its specific features are a continued scarcity of soft irons, with a brisk enquiry for them, particularly the silvery grades; a better demand for car-wheel iron, which until recently has been neglected; a tendency to confine orders to immediate or early deliveries. This last fact is due principally to an unwillingness of furnace owners to sell ahead at the figures current for present delivery. Buyers have, as a rule, accepted the new basis of prices and adjusted themselves to it, but are unwilling to contract for the future at anything higher. We quote on



the cash basis as below, representing the limits between which sales large and small are made:

HOT-BLAST FOUNDRY.	
Ohio and Southern Strong Coke No. 1.	\$16 00@17 00
" " " " No. 2.	15 00@16 00
" " " " No. 3.	14 50@15 00
Ohio Soft Stonecoal, No. 1.	16 50@17 00
" " " " No. 2.	16 00@—
Mahoning and Shenango Valley Coke, No. 1.	16 75@17 75

CHARCOAL IRON.	
Hanging Rock, No. 1.	\$19 00@20 00
" " " " No. 2.	18 00@19 00
Tennessee and Alabama, No. 1.	17 50@18 50
" " " " No. 2.	16 50@17 50

FORGE.	
Strong Neutral Coke.	\$14 00@—
Mottled " "	13 00@—
Cold Short.	13 25@—

CAR WHEEL AND MALLEABLE.	
Southern Car-Wheel Iron.	22 00@24 00
" " " " W. B.	25 00@27 00
Lake Superior Malleable.	22 00@23 00

Specially reported by E. L. HARPER & CO.

CINCINNATI, November 9, 1885.

The buoyancy of the market at our last writing is well sustained, the general demand being liberal and the metal moving into busy consumers' hands. There is no speculative buying that we hear of. Prices are well sustained. We quote as prices current, cash f. o. b. cars or wharf here:

FOUNDRY.		Cash.
Hanging Rock Charcoal, No. 1.	\$18 50@19 50	
" " " " No. 2.	17 50@18 50	
Southern Charcoal, No. 1.	17 00@18 00	
" " " " No. 2.	16 00@17 00	
Strong Neutral Coke, No. 1.	16 00@16 50	
" " " " No. 2.	15 00@15 50	
American Scotch, No. 1.	15 50@16 00	

GREY FORGE.	
Neutral Coke.	13 50@14 00
Cold Short.	13 50@14 00

CAR WHEEL AND MALLEABLE.	
Hanging Rock, strictly cold blast.	25 00@26 00
Hanging Rock, strictly warm blast.	21 00@22 00
"Cranberry," N. Carolina Warm Blast.	22 25@23 75
Amherst and Virginia Warm Blast.	19 00@20 00
Lake Superior Charcoal, all grades.	19 00@20 00

## Louisville Iron Market.

Specially reported by W. B. BELKNAP & Co., Nails, Wire, Iron, Hardware, Carriage and Wagon Goods.

LOUISVILLE, KY., November 9, 1885.

The month of November, usually a dull one in iron and hardware circles hereabouts, opens up with an encouraging volume of trade. The improvement in prices, however, which was promised us during the more active months of August and September, has not manifested itself except in a few articles that were before that abnormally low, probably below cost. Carriage bolts, hinges and spikes have all scored an advance, and so far are firmly held by the manufacturers.

Bar Iron—There is no change to speak of in bars. Some specialties are being offered extremely low, but bars proper, if anything, are a little stronger than they were last summer.

Hoops and Bands—The manufacturers of these specialties are firm in their prices.

Sheet—The light sheet has settled down to a price some 3.00 to 4.00 above the spring figure which prevailed before the closing of the mill. The failure at Niles of a mill running exclusively on sheet, yet run as economically as possible, we take it, shows how little profit there has been in this business at last summer's prices.

Steel—The season is running fairly well on agricultural steel. Shapes are beginning to be called for by the smaller makers, and the mills profess to be running full.

Nails—There are rumors every few days of a cessation of the nail strike. Predictions have been freely indulged in all the while that it would soon be over. The starting up of Belleville, and the addition of almost forty machines, as we learn, to the manufacturers' scale, taken in connection with the fact that the season is far advanced, has done a good deal to relieve the market. Prices here range anywhere from 2.75 to 3.00, which is less than we hear of elsewhere, but the proximity of the nail mills and the readiness with which manufacturers can realize on their shipments, makes this a favorable point for shipments and distribution.

Wire—Is slow, as it is everywhere. Every now and then we are promised that "next week" the advance is going to take

place sure enough, but so far there has been no realization, nor do we see how there can be until towards spring.

Ammunition—Is a little firmer, as there are hints of the manufacturers arranging with the jobbers to maintain the agreed prices.

Drop shot has fully justified its name, and since the break in the association, has declined 15 cents per bag more.

We quote as follows:

Bar Iron.	65 @1 75
Crescent Steel.	9 1/2 @ 12
Plow Steel slabs.	2 1/2 @ 3 1/2
No. 27 Sheet.	10 @ 3 20
Galvanized sheet, best.	50 @ 55 1/2
Galvanized low barb wire.	4 60 @ 4 75
Burden Shoes.	3 90 @ 4 00
Junata Shoes.	3 35 @ 3 65
Steel nails.	2 85 @ 3 00
Rope, Sisal.	8 1/2 @ 8 1/2
Rope, Manila.	13 1/2 @ 15
Screws, American Screw Co's list.	75 @ 80 1/2
Axes.	6 50 @ 6 75
Cross cut saws, wide, per foot.	26 @ 38 cts.
Cross cut saws, narrow, per foot.	21 @ 23 cts.

With concessions to large or wholesale buyers.

Specially reported by GHO. H. HULL & Co., Commission Merchants for the sale of Hot and Cold Blast Pig Iron.

LOUISVILLE, KY., Nov. 9, 1885.

The market for pig iron has not been as active as the week before, but is fully as firm. Sales have been curtailed on account of most of the irons which were offered at a bargain having been picked up, and present sales are made at full market quotations. We quote for cash in round lots as below:

PIG IRON.	
Southern Coke, No. 1 Foundry.	\$16 00@17 00
" " " " No. 2.	15 00@16 00
" " " " No. 3.	14 50@15 50
Hanging Rock Coke, No. 1 Foundry.	16 00@16 50
" " " " No. 2.	15 00@16 00
Southern Charcoal, No. 1 Foundry.	19 00@20 00
Silver Gray, different grades.	14 50@16 00
Southern Coke, No. 1 Mill, Neutral.	14 00@14 50
" " " " No. 2.	13 00@13 50
" " " " No. 3.	12 50@13 50
Southern Charcoal, No. 1 Mill.	15 50@16 50
White and Mottled, different grades.	11 00@12 50
Southern Car Wheel, standard brands.	17 00@19 00
" " " " other brands.	22 00@23 00
Hanging Rock Cold Blast.	17 00@19 00
" " " " Warm.	22 00@23 00

## Chattanooga Iron Market.

Specially reported by LOWE & TUCKER, Brokers and Commission.

CHATTANOOGA, TENN., Nov. 9, 1885.

The market for all heavy material has been steady during the week, with no disposition to concede prices in any of the leading lines. Pig iron to Southern points has been moving regularly, although foundries are pursuing a conservative course in buying, so far as quantity is concerned. The disposition of all the manufacturers is to narrow down everything as far as practical, with a view of balancing their profit and loss account at the end of the year. The lumber business has shown no falling off, and prices are decidedly stiffer, and this condition of affairs will also apply to most articles turned out by the planing mills and makers of sash, doors and blinds. We omit the quotation of nails, as prices are too uncertain; others we quote as follows:

No. 1 Foundry.	\$14 50 @15 00
No. 2 Foundry.	13 50 @14 50
American Scotch.	13 50 @14 00
Gray Forge.	12 00 @13 00
Car-Wheel Iron.	22 00 @24 00
Ores, Red and Brown.	1 50 @ 2 25
Furnace Coke.	2 00 @ 2 50
Nails, car-load lot, 30 days.	— @ —
Bar Iron, per 100 lb.	— @ 1 33
Old Rails.	— @ 16 00
Old Wheels.	— @ 13 50
Wrought Scrap, No. 1.	— @ 55
" " No. 2.	— @ 40
Cotton Tie Clippings.	— @ —
Cast Scrap.	— @ —
Railroad Splices.	— @ 1 65
Railroad spikes.	— @ 1 60
Light Steel Rails, long ton.	— @ 47 00
Barb wire—Cambria link.	5 @ 5 1/2
Barb wire—four point galvanized.	— @ —
Barb wire.	— @ —

## St. Louis Iron Market.

Specially reported by W. H. SHIELDS, Pig Iron and Iron Ore, No. 305 Olive Street.

ST. LOUIS, Nov. 9, 1885.

The market here is by no means satisfactory. There is less inquiry and considerable cutting, especially in irons a little off grades:

HOT-BLAST CHARCOAL.	
Missouri.	\$14 50@16 50
Southern.	17 00@18 00
Ohio.	— @ —

COKE AND COAL.	
Missouri.	15 00@16 50
Southern.	15 00@17 00
American Scotch.	16 00@19 00

MILL IRONS.	
Missouri.	14 00@14 50
Southern.	14 00@14 25

CAR-WHEEL AND MALLEABLE IRON.	
Southern.	20 00@24 00
Lake Superior.	20 00@23 00

MISCELLANEOUS.	
Old Wheels.	14 25@14 50
Old Rails.	17 50@18 50
Old Rails, steel.	— @ —
Wrought Scrap.	60 @ 70
Cast Scrap.	50 @ 60
Connellsville Coke, East St. Louis.	5 30@—

## TRADE NOTES.

THE Safety Steam Generator Company, New York, write us as follows:

"Our business now has a boom; we are getting orders right along, and the Pioneer Iron Works, who are building the Zell boilers for us, are so full of work for us that we have decided to build large works, and are now ordering special machinery for the production of the Zell boilers. We frequently get inquiries through your paper."

MINERS, engineers, surveyors, ranchmen and lumbermen will find a good deal to interest them in the catalogue of Messrs. Upthegrove & McLellan, Valparaiso, Ind. It shows samples of goods and prices of suits made of corduroy, leather, canvas, &c., for those whose business necessitates exposure and rough work. They make a specialty of sportsmen's clothing, and their suits have a wide reputation. See the cut of their gunning coat as shown in their advertisement in this issue.

THE Westinghouse Machine Co. have within the last 30 days shipped for electric lighting alone the following Westinghouse engines: Brush Electric Light Co., of Buffalo, three of 60 horse-power each, making the fifteenth order from that company; Toledo Electric Light Co., 65 horse-power; Cleveland Electric Light Co., a fifth order for 60 horse-power; Oshkosh Gas Co., for electric lighting, 50 horse-power; W. D. St. Clair, Chicago, one 50 and one 35 horse-power; Geo. D. Sheibly, Fostoria, Ohio, 35 horse-power; the Pittsburgh Club, 35 horse-power, with a complete incandescent plant, besides about 20 smaller engines to private parties.

THE 1885 catalogue of Mr. John S. Oram, 165 River Street, Cleveland, Ohio, will be of interest to all who need or use barrel, keg or stove machinery. It will be sent on application.

SMITH, MYERS & SCHNIER, Cincinnati, O., have just contracted with Wm. L. Pence, of Frankfort, Ky., for one of their large 100 horse-power Terrapin engines, edger, &c.

THE Westinghouse Machine Co. are still further enlarging and improving their works. They are building a furnace to be fired with natural gas, and are erecting a steam hammer for the die forging of their connecting rods from mild steel. They are also building a brass foundry for the production of their own castings. Natural gas has been introduced throughout the works.

THE Egan Company, Cincinnati, O., have just designed a new band saw mill, with 8 feet wheels, and with some new features specially designed to give it great strength, and make it superior to their first machines. They say they have just 100 of their mills in use, ranging from Canada to Mexico.

## Important to Southerners.

Persons arriving in New York via Cortlandt Street Ferry, by taking the 6th Avenue Elevated Train, corner Church and Cortlandt streets, can reach the Grand Union Hotel in 42d street, opposite Grand Central Depot, in twenty minutes, and save \$3 carriage hire. If en route to Saratoga or other summer resorts via Grand Central Depot, all baggage will be transferred from hotel to this depot free. 600 elegantly furnished rooms, \$1 and upwards per day. Restaurant the best and cheapest in the city. Families can live better for less money at this hotel than at any other first-class hotel in the city. †

T. M. Parker, Steel Stamps, Stencils, Hartford, Ct.

## List of Patents.

The following Patents were granted to citizens of the Southern States, bearing date Nov. 3d, 1885. Reported expressly for this paper by Louis Bagger & Co., Mechanical Experts and Solicitors of Patents, Washington, D. C.

Ashford, T. B., Clinton, N. C. Metal eyelet or button-hole.	329,692
Baldwin, J. R., Montgomery, Ala. Flooring board.	329,616
Barr, J. R., Union Star, Ky. Remedy for rheumatism.	329,697
Bassell, J. V., Leesburg, Va. Sash fastener.	329,804
Bedinger, D. E., Richmond, Ky. Ruling-apparatus.	328,699
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Cathcart, J. L., Alexandria, Va. Railway fish-plates.	329,622
Comegys, E. W., Edesville, Md. Corn-harvester.	329,438
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Griffin, D. D., and L. H. Bachtell, Baltimore, Md. Metal-planer.	329,550
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Hill, John, Columbus, Ga. Apparatus for extinguishing fires.	329,741
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Moore, G. W., Dunedin, Fla. Ladder and fruit-conveyer.	329,668
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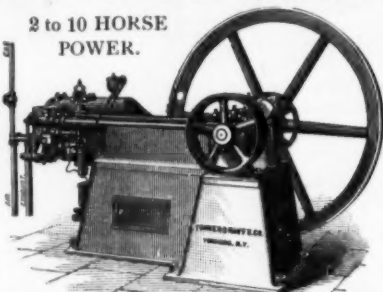




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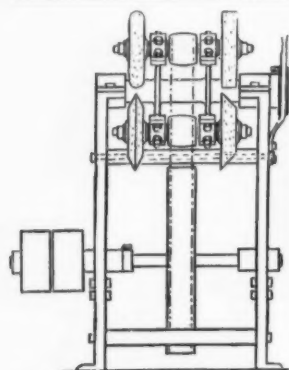


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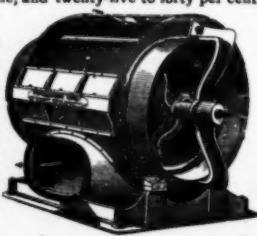
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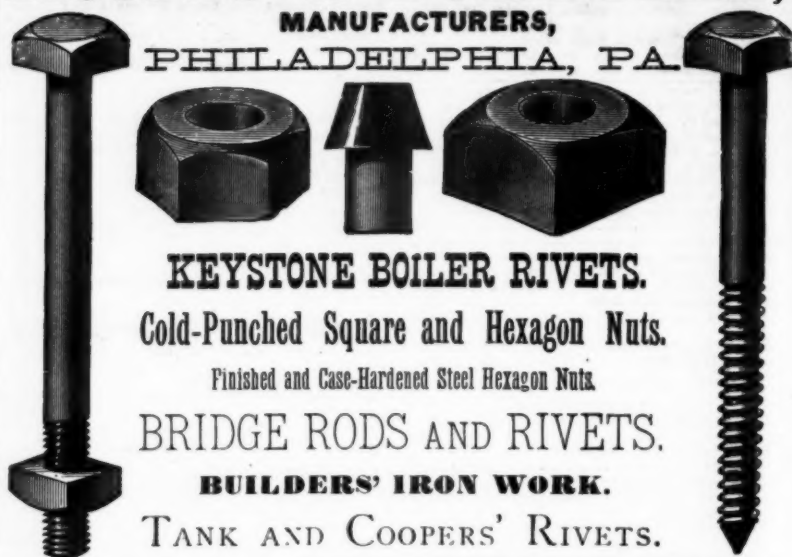
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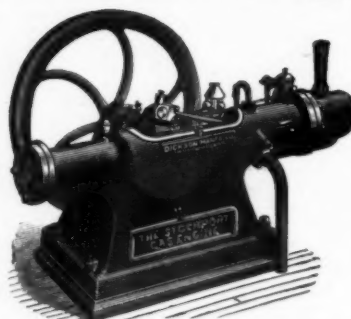
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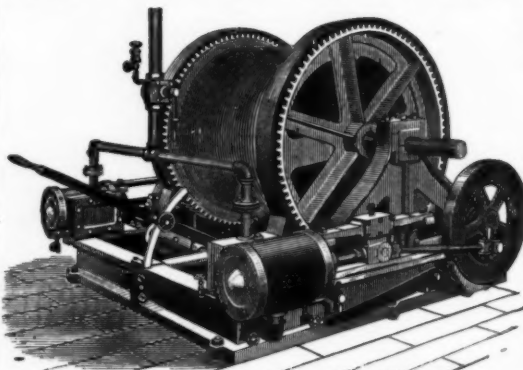


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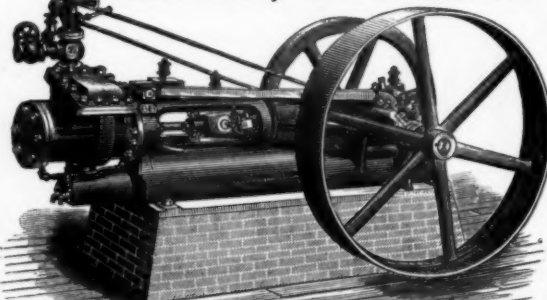
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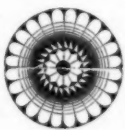
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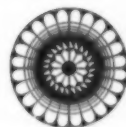
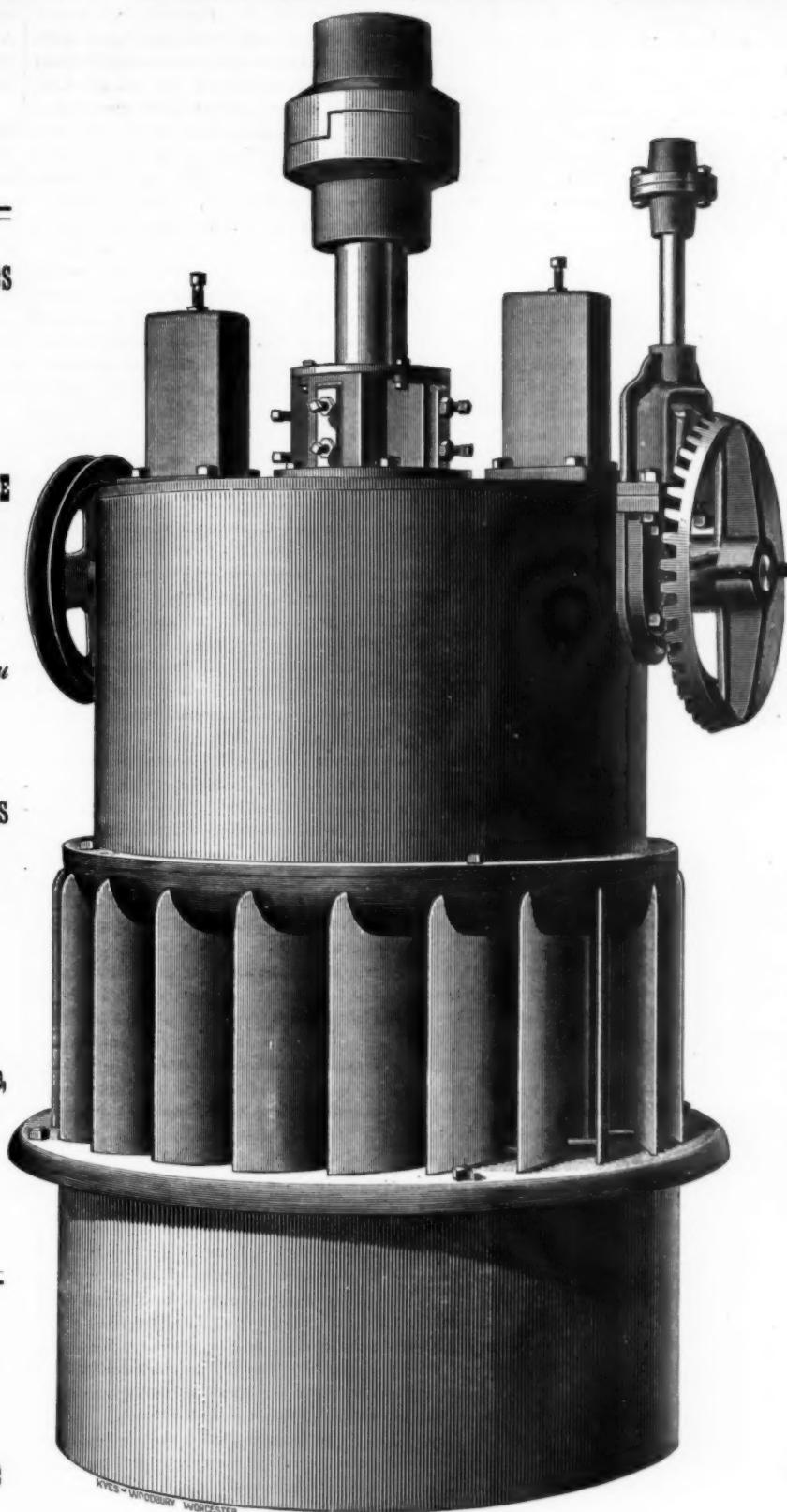
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	Diam. in inches.	Head on Wheels.	Horse Power.	Date of Setting.
Albion Paper Company.....	39	25	255	1878
Albion Paper Company.....	24	25	115	1883
Albion Paper Company.....	45	27	445	1880
Chemical Paper Company.....	30	27	200	1883
Chemical Paper Company.....	4-30	23	620	1880
Chemical Paper Company.....	5-18	23	275	1880
Chemical Paper Company.....	33	23	185	1880
Chemical Paper Company.....	42	23	305	1880
Chemical Paper Company.....	2-48	23	800	1880
Connecticut River Pulp Company.....	36	18	155	1881
Crocker Paper Company.....	39	25	300	1883
Farr Alpaca Company.....	48	19	300	1878
Franklin Paper Company.....	39	20	215	1883
Geo. R. Dickinson Paper Company.....	2-45	19	520	1883

	Diam. in inches.	Head on Wheels.	Horse Power.	Date of Setting.
Geo. R. Dickinson Paper Company.....	36	19	170	1883
Holyoke Water Power Company.....	30	19	115	1882
Holyoke Warp Company.....	48	11	130	1879
Massachusetts Screw Company.....	27	19	90	1882
Merrick Thread Company.....	46	12	150	1880
Newton Paper Company.....	48	21	350	1880
Nonotuck Paper Company.....	29	175	1881	
Riverside Paper Company.....	48	20	325	1880
Syms & Dudley Paper Company.....	45	29	495	1881
Syms & Dudley Paper Company.....	24	29	140	1877
Springfield Blanket Company.....	36	18	155	1881
The Beebe & Holbrook Paper Co.....	24	19	75	1884

	Diam. in inches.	Head on Wheels.	Horse Power.	Date of Setting.
The Massasoit Paper Company.....	39	19	107	1883
Union Paper Company.....	45	20	285	1882
Union Paper Company.....	30	20	125	1882
Valley Paper Company.....	42	27	350	1882
Waugrean Paper Company.....	42	18	210	1879
Waugrean Paper Company.....	33	18	130	1882
Whiting Paper Company.....	27	18	85	1882
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## The Seaboard Air Line and Its Efforts to Develop North Carolina.

One of the most important Southern railroad combinations, and one that is notably well managed, is the Seaboard Air Line, of which Col. John M. Robinson, of Baltimore, is president.

The railroad system known as the Seaboard Air Line consists of four railroads, viz: (1.) The Seaboard & Roanoke, beginning at Portsmouth, Va., and extending to Weldon, N. C., 80 miles; (2.) The Raleigh & Gaston, from Weldon to Raleigh, 97 miles; (3.) The Raleigh & Augusta, from Raleigh to Hamlet, 97 miles; and (4.) The Carolina Central, from Wilmington, via Hamlet, to Shelby, N. C., 242 miles, which is now being extended to Rutherfordton.

The Seaboard Air Line thus forms a Y, the foot of the stem being at a point in the extreme southwestern part of the Piedmont region of North Carolina, and the two prongs terminating at the two seaports of Wilmington, N. C., and Norfolk, Va., about 300 miles apart.

Under the same management with these roads is the famous Bay Line of steamers running between Norfolk and Baltimore.

The managers of the Seaboard Air Line lately published a folding map of their system, and on the back of the same some interesting facts regarding the country tributary to their roads, with a view to attracting immigration, from which we take the following extracts:

"It is confidently asserted that the territory reached by the Seaboard Air Line is one which may safely challenge comparison with any other area of equal extent on the face of the earth, for excellence of climate, variety of soil and production, good health, cheap living, kindly people, and everything else that a reasonable person could ask for in seeking a home, and, as proof of this assertion, a general statement of some of the facts on which it is based, supplemented by a few particulars, is herewith given.

"Much the larger part of this territory lies within the State of North Carolina.

"The lands embraced in the territory reached by the Seaboard Air Line range in quality from the richest alluvial bottoms through every gradation to the light, dry sand hills. Two-thirds at least of the whole area is heavily timbered with almost every variety of woods; the finest water-powers on the continent are embraced in this area, and in the western part of it there are large deposits of coal, iron, copper, gold and other minerals, and every kind of building stone, including the best granite, brown sandstone, etc. These lands are cheap. They produce, in addition to the best rice, cotton and tobacco, all the grain crops, grasses and fruits known to the temperate zone. It is the best grape producing and wine making region east of California. It is conceded to be the future center of the silk industry in the United States—an industry already established—for it has been proved that the white mulberry, on which the silk worm feeds, flourishes in this region better than it does in the south of France. The climate is as nearly a perfect one as can be found in the world. It is settled by a plain, hospitable, law-abiding and generous people, who welcome strangers to their midst, and it is well supplied with schools and churches of all denominations. This is a very brief general statement, and now some particular facts are given which are all taken from official sources, and are absolutely free from any possible suspicion of intentional exaggeration or interested motives in their compilation by the scientists, officials and strangers who testify to their truth.

"In his geological report, Dr. Kerr, State Geologist, speaking of the climate of the different sections of North Carolina with reference to their isothermal ranges, says: 'Middle and Eastern North Carolina correspond to Middle and Southern France, and

Western North Carolina to Northern France and Belgium; and all the climates of Italy, from Palermo to Milan and Venice, are represented.'

"The State is just midway of the Union, and is, therefore, on the central belt of the temperate zone. This fact, together with those other two fortunate conditions, viz: that the great Appalachian chain of mountains, rising to an altitude of 7,000 feet on her western border, shields her territory from the severe winds of the northwest, and the Gulf Stream, which runs nearer her shore than to any other, tempers the climate far inland, combine to make the climate equal to any in the world. As the Commissioner of Agriculture says: 'The spring comes in with less of those fickle variations which mark its advent elsewhere on this continent. The summers are not oppressive, even in the low country, or if so, for a few days only. But in the autumn nature here exhibits herself in her most benignant mood in her most favored zone. From the incoming of October to the latter part of December there is an almost uninterrupted succession of bright, sunny days, during which the air is dry, crisp and pure—a season equally favorable to the ingathering of the crops and to active exertion of every kind. The reign of winter as respects cold and wet is short, and field labor is carried on throughout that season, with the exception of two or three days at a time. Frost makes its appearance about the 15th of October, and sometimes there is not enough to nip the tender vegetable until the end of November. From the Blue Ridge to the seaboard ice rarely forms of a thickness to be gathered, except in localities overhung and deeply shaded by high Southern bluffs. When snow falls it covers the ground for only a few inches, and is quickly dissipated by the sun. Fogs are of rare occurrence, and then mainly in the form of a belt of light vapor, marking the course of the larger streams, in the latter part of the summer and during the autumn months. The average rainfall throughout the State is 53 inches, which is pretty uniformly distributed through the year.'

"As an evidence of the appreciation in which the climate is held by Northern people, it is only necessary to point to the fact that at Kittrell, on the Raleigh & Gaston road, there is a hotel which, from the beginning of winter to late spring, is crowded with the wealthy people of Massachusetts and other Northern States, who say that they can find no pleasanter place in America for invalids and delicate persons to stay during the cooler months of the year.

"The topography of the region embraced by the Seaboard Air Line may be divided into three belts—one extending from the sea coast westwardly for a distance of about 80 miles, to where the long-leaf pine ceases to grow; one about the same distance beyond, covering a slightly rolling country, and one about the same distance over a still higher plateau, which rises at its western extremity to an altitude of more than 1,500 feet.

"Along this line at many points may be seen water-powers which have been pronounced the finest in the country. At Weldon, where the line crosses Roanoke river, there is a water-power of which the State Geologist speaks as follows: 'Beginning with the Roanoke river, the discharge of which at Haskins' Ferry, some 50 miles above Weldon, is 170,000 cubic feet per minute, we have a force of 335 horse-power for each foot of fall, or an aggregate for the part of the river lying in the State of 70,000 horse-power.' This is only one of many streams in the territory through which the Seaboard Air Line passes, each of which furnishes an immense water-power, which is, comparatively speaking, only very slightly utilized, and which is rarely or never obstructed by ice, but flows freely throughout the year. Notable among these water-powers are those of the Neuse river near Raleigh, Deep river in Chatham county, the Pee Dee in Anson and Richmond counties,

the Catawba river beyond Charlotte, and many others. The Neuse river gives a force near Raleigh of 22 horse-powers per foot, which will make for that stream and its tributaries above Goldsboro a force of about 10,000 horse-power. Haw river, which now turns more spindles than any stream in the State, unites with Deep river near the point at which the Raleigh & Augusta Air Line crosses it, and each of these gives about 40,000 horse-power; and the total of these and the Cape Fear (which they unite to form) amounts to about 140,000 horse-power. The Pee Dee, on which there are many mills and factories, furnishes, with its tributaries, a very large power, equal to most of the others; and the Catawba is estimated, with its tributaries in the State, at 250,000 horse-power, there being at one point on this stream, Mountain Island, a power measured and estimated at not less than 12,000. Besides these streams, there are many smaller ones on the Seaboard Air Line which would be regarded as extremely valuable in other parts of the country.

"There is concentrated in the State of North Carolina a wealth of forest development which is almost without a parallel. The trees most valuable in the arts are found in greater variety and covering a wider area than elsewhere. 'The long-leaf pine alone is the basis of industries whose annual products in the State are not less than \$3,000,000,' says Prof. Kerr, and to this product of the eastern section may be added the very large revenues derived from the juniper (white cedar) and cypress which abound. Dr. Curtis, the most distinguished botanist of the South, long since called attention to the fact that there are more species of oaks in North Carolina than in all the States north of us, and only one less than in all the Southern States east of the Mississippi.' In Hale's 'Woods and Timbers of North Carolina' the following remarkable statement from Dr. Kerr's botanical report is given, in regard to the distribution of a few kinds of trees which are dominant and characteristic:

"Of species found in the United States (east of the Rocky mountains) there are:

Oaks,	22, and 19 in North Carolina.
Pines (trees),	8, and 8 "
Spruces,	5, and 4 "
Elms,	5, and 3 "
Walnuts,	2, and 2 "
Birches,	5, and 3 "
Maples,	5, and 5 "
Hickories,	8, and 6 "
Magnolias,	7, and 7 "

"Nearly every one of the 20 kinds of timber admitted to the New York ship-yards as suitable for building vessels is found in the region traversed by the Seaboard Air Line, and there are about 40,000 square miles of forests in the State as yet uncut.

"The 'trucking' business is destined to become a leading and very profitable industry along the Seaboard Air Line. It has long been an important industry on the Norfolk end of the line; but a region of country very similar to that (and which has heretofore been shut out from market) having been opened up by the extension of the line, and especially by that part of it between Raleigh and Hamlet, and there being hardly any difference in the time required to deliver the goods in the Baltimore and Northern markets, the growing of fruit and vegetables for these markets must largely increase. The territory alluded to is that traversed by the Raleigh & Augusta Air Line. The lands are admirably suited to these products. Every kind of fruit, berry and vegetable may be successfully cultivated upon them. They lie chiefly along the westernmost extremity of the pine-bearing section of the State, and the soil is a mixture of sand and clay, generally light and dry. Truck gathered here in the afternoon is laid down in Norfolk the next morning early, ready for shipment on the same boats or trains that take the products of the truck farms a few miles from that city. This region, too, is

justly celebrated for its variety of grape products. Several of the finest grapes known on this continent for wine making, such as the Catawba, Isabella, Lincoln and Scuppernon, are natives of North Carolina, and on two of the roads comprising the Seaboard Air Line, the Raleigh & Augusta and the Carolina Central, these grapes and many others grow in perfection.

"Previous to the discovery of California, North Carolina furnished the chief gold supply of the country, and the amount estimated to have been taken from the mines of the State up to June, 1882, was \$30,000,000. The Seaboard Air Line passes through seven of the principal counties in which gold has been found in paying quantities, and some of the most valuable mines of the State lie within sound of the locomotives running on the line.

"With many of these gold veins are associated copper ores. Many of them, indeed, have been changed into copper mines, and Dr. Genth, the eminent mineralogist, says that 'there is every reason to believe that many of the mines require only a fuller development to enable them to furnish large quantities of valuable ores.'

"The best evidence that could be given of the wealth of building stones found in the country through which the Seaboard Air Line passes is the fact that there are 79 specimens of them now in the National Museum at Washington, among which are included every variety of granite (not excepting the Scotch), sandstone of different colors and qualities, marble, etc.

"One of the finest quarries in the State is the Anson county brown sandstone quarry, which produces a very fine, rich, brown sandstone, which works well and stands the weather better than almost any sandstone in the country. This material was used in the construction of the new executive mansion at Raleigh and is much admired. The development of these and other quarries which lie immediately along the Seaboard Air Line offers a splendid field for investment. There has never been any attempt to secure any other than a local market for these building stones, and there is a fortune for any one who will take hold of this business and push it.

"There are nearly 200,000 farms in North Carolina, ranging in extent from three acres up to 1,000 and over, and on these are produced all or nearly all the crops produced in the United States, the principal ones being cotton, corn, tobacco, wheat, oats, rye and rice. The Seaboard Air Line traverses territory in which every one of these crops is largely cultivated, in addition to the other industries heretofore mentioned, and it enjoys exceptional facilities, through its various agencies, for offering inducements to settlers to locate in this territory. The people resident in it are a very hospitable, kindly and generous community, who will welcome to their midst any who come with a desire to aid in the development of the wonderful resources by which they are surrounded, or to enjoy the pleasures of the climate and the country, and, as evidence of this, they stand ready to sell to settlers, at the lowest rates and upon the most reasonable terms, a liberal portion of their property of every kind.

"Mention has already been made of the magnificent water-powers which are distributed throughout the country reached by the Seaboard Air Line, and which are thus brought near the raw materials to be utilized in manufacturing. 'The aggregate water-power of the State,' says the State Geologist, Dr. Kerr, 'is about 3,500,000 horse-powers, and this force is distributed over the entire area of the State (with the exception of a few seaboard counties).'

"In addition to this immense water-power, the vast amount of wood everywhere, and its cheapness and convenience for use, supplies, and will supply for many years to come, a great abundance of fuel for steam-power. Thus, with so many advantages of climate, water and steam-power, and raw



material of every kind, the country through which the Seaboard Air Line passes is bound to become a great manufacturing as well as agricultural region.

"Any account of the industries of the country reached by the Seaboard Air Line which omitted a notice of the culture and manufacture of tobacco would be sadly imperfect. This industry has become one of the largest and most lucrative in the State, and it is nowhere more profitably carried on than in some of the counties traversed by this line. There are about 225 tobacco factories in the State of North Carolina, and about 30 of these are on or near the Seaboard Air Line.

"At these factories is made the very finest tobacco in the world, and the product is so well known that a further discussion is unnecessary.

"Not only on the Raleigh & Gaston and the Raleigh & Augusta, but on the Carolina Central beyond Charlotte tobacco is becoming the leading crop. Lands which were never before devoted to this culture have been discovered to be perhaps better adapted to it than to anything else, and consequently they are being cultivated in this new and profitable crop under the greatly improved methods which now prevail. Several qualities of tobacco, ranging from the 'gold leaf' to the common kinds, are raised, and they are all profitable.

"Taken as a whole, there is no country under the sun which offers greater inducements, both to the laborer and the capitalist, than that through which the Seaboard Air Line passes. There is an almost perfect climate; there are good soils of various kinds, abundant forests, splendid water-powers, rich coal, iron, gold, copper and other ores, the best building stones; in a word, every product of every other State. The people have more land than they can use and are anxious for immigration, and in order that the country may be developed, the management of the Seaboard Air Line are heartily co-operating with the land-owners in their efforts to induce settlers to come in. The present year is a most propitious time for intending immigrants to do so, and they are assured that if disposed to seek new homes in this region, they will be heartily welcomed and their every interest will be protected. The immigrant who removes to the far West must incur great expense and a long journey, and if dissatisfied, or even if desirous to return on a visit to his old home, he must incur it again; but the person seeking a home in the country about which these pages have been written is spared such an experience. He is in easy distance of all the centers of population, and it costs him a mere trifle to reach them. From any point on or near the Seaboard Air Line he can reach New York in a few hours for a few dollars, and in comfort. Let all, then, who are seeking new homes come and be welcome!"

In furtherance of their efforts to attract immigration, the Seaboard Air Line has made the following liberal rates:

"All non-residents of North Carolina who purchase or rent lands on the line of the Seaboard Air Line roads will be entitled to the following privileges during the first year of their residence:

"All male heads of families will be passed over roads free of charge for one year from the date of actual settlement, and the immediate members of their families (not including servants) will be furnished tickets at two cents per mile during said period. Also, a reduction of one-half from the regular rates of these roads will be allowed by the agent at their nearest station on freight of whatever kind received by them during the first year of their residence, provided it be for their own use, and not for sale or transfer to others."

Immigration to the South is a matter of vast importance to the railroads of that section, and it is upon their work that immigration will largely depend. The enormous immigration in the West has been largely

the result of the persistent advertising of the resources of that section by the railroads, and so it must be in the South. The Seaboard Air Line has certainly set forth an attractive and at the same time a truthful description (only a part of which we have quoted) of the resources and attractions of the country tributary to their line. Descriptions of this kind, if well circulated, will be sure to bring large returns.

### Free Trade.

The Philadelphia Press speaks of the New York Times as "our esteemed British contemporary." The Times is a free-trade paper.

The Press calls the Times a British newspaper, because the latter favors free trade and free trade is what some of the countries of Great Britain desired. Free trade, absolutely free trade, would no doubt be of great benefit to the countries like England and Scotland—countries with vast manufacturing establishments, immense stocks of manufactured goods, a limited agricultural area and cheap labor.

Mr. Parnell, the great Irish leader, wants a separate government for his country, in order that laws can be enacted which will revive and protect the down-fallen Irish industries—industries that were ruined by the hostile legislation of England.

The South is poor from lack of diversified industries. Just now, when the attention of capitalists and manufacturers is being turned to the South, is a most inauspicious time to endeavor to promote free trade. The South desires to enjoy some of the prosperity and benefits that have been reaped by Pennsylvania, the New England States and some of the Western States, by reason of a "protective" tariff.

The establishment of manufactories and industrial shops creates a home market, and a home market is better for the agriculturists of this country than a foreign market.

If there were a number of big cotton and woolen factories scattered throughout the State of Mississippi, the lands in this State would be worth from ten to one hundred times what they are worth now, and it would not be considered a disadvantage to own real estate in the towns and cities, which is often the case now.

It is not an improbability that the internal revenue taxes will be abolished in the United States—they are the only remaining war taxes. The Democratic Conventions of North Carolina, Virginia, Pennsylvania and other States have declared in favor of wiping out the whole internal revenue system of taxation. The temperance people should favor the abolition of taxes on whisky, etc., as a big step in their efforts to control the liquor evil. If the internal revenue taxes are abolished there will be an end to free trade talk. This country prospered before the war without internal revenue taxes and can do so again.

No one in the United States is suffering from the "burdens" of the tariff on imported articles. A very large amount of the tariff revenue is derived from duties on silks. Do our Southern people want free trade in silks? A considerable revenue is derived from duties on fine cotton goods. Let the tariff be continued or increased so that these cotton goods will be manufactured in this country.

The platform of the last National Democratic Convention very wisely favored a policy of raising revenue so that it would foster and encourage American labor and industries, under an economical administration of the government. We intend to stand by the Democratic platform, and it is certainly opposed to "free trade."—Vicksburg Evening Post.

If you are not already a subscriber to the BALTIMORE MANUFACTURERS' RECORD, send us \$3 and you will receive it regularly for one year, or six months for \$1.50.

# E. W. BLISS,

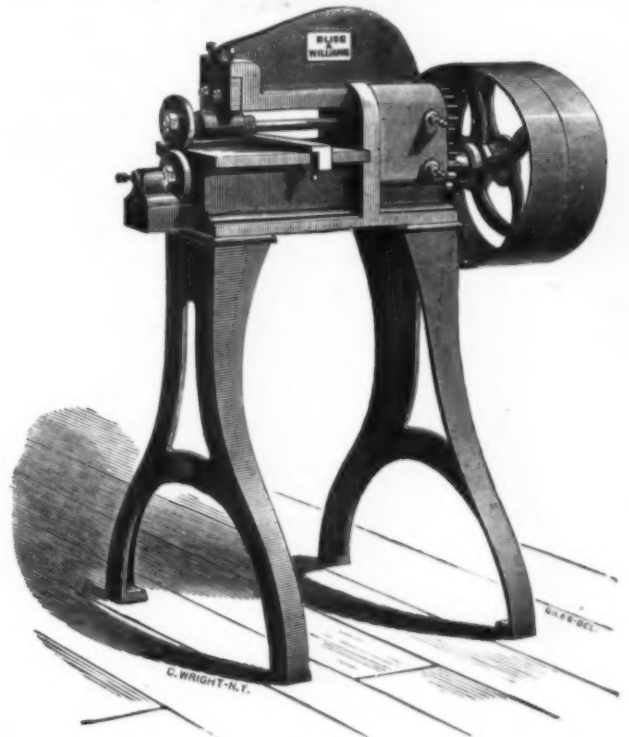
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That valuable property known as the

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The plant consists of four (4) acres of ground, upon which is situated a one-story brick building 220 feet long and 60 feet wide, with roof and walls fire-proof. In said building is

## One Complete Set of Spinning Machinery,

which comprises one willower, four lappers, fifteen cards (self-stripping) three railway heads, two drawing frames, four speeders, two thousand eight hundred and eighty Danforth spindles, two spoolers, five warping mills, one bundle press, one power baling press, one banding frame, one card grinder, spools, bobbins, tin cans, belting, shafting (main and counter), tin box racks, and all the necessary fixtures for operating at once.

One 200-horse-power engine (Buckeye) complete, two boilers, one steam jacket heater, one Knowles pump and fixtures, furnishes the power.

The office is furnished complete.

This mill is new and has never been run. It is situated near the corporate limits and within eight blocks of the business center. The machinery has been tested and found satisfactory. Also,

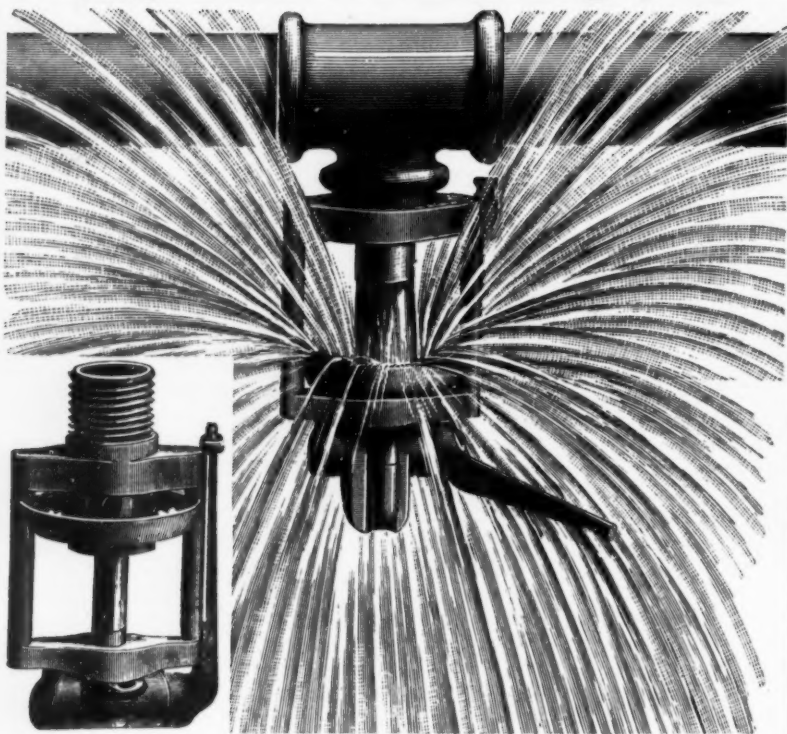
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160 acres situated near Coalberg, in Jefferson county, and 120 located in Walker county, Ala. These coal lands lie between Coalberg and Pratt mines, and are near the Georgia Pacific Railroad, and the coal is of an excellent quality.

The above property cost \$80,000, but can be bought for \$32,500—one-half cash; balance on reasonable time. All titles are perfect. Apply to

B. F. RODEN, P. O. Box 55, Birmingham, Ala.

## WALWORTH Strong Sensitive Link Sprinkler.



THE WALWORTH STRONG SENSITIVE LINK SPRINKLER, for the extinguishment of fires, having for its most salient points

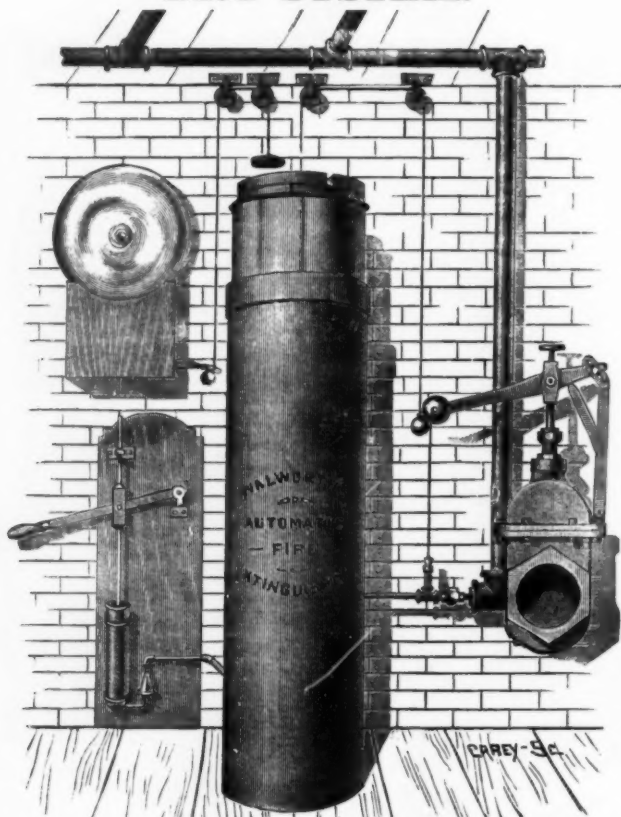
**STRENGTH, SIMPLICITY AND RELIABILITY,** has forced its way to the front solely because it has been proved to be the best Sprinkler made. No Sprinkler ever introduced has shown such good results. In no instance has it failed to act when needed, notwithstanding the fact that it has been severely tested in many instances.

*We give below the account of a remarkable fire:*

MESSRS. WALWORTH MANUFACTURING CO.:

GENTLEMEN—On Sunday evening fire was discovered in our engine room, and in five minutes had worked its way through a belt box to the fourth floor. For a few minutes it looked as if the place must go, but the automatic heads on each floor near the fire went off and quickly extinguished it without assistance from hose or anything else. Had there been sprinklers in the engine room, fire could not have got beyond it, and we will be pleased to have you put them in this room at your earliest convenience. After the fire was out we shut the water off at tanks, put on new rings at the eleven heads which had gone off, and with water on started in full next morning as though nothing unusual had taken place.

## WALWORTH Automatic FIRE Extinguisher. DRY SYSTEM.



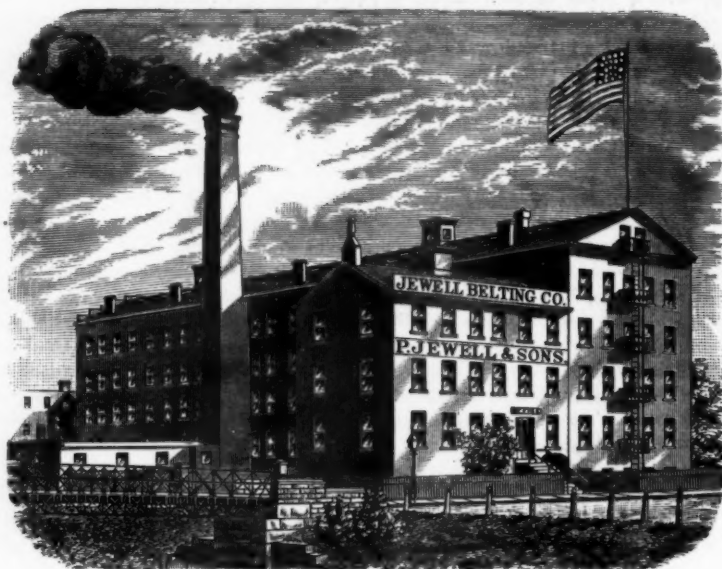
By this system the pipes are filled with compressed air under a pressure of one pound to the square inch. Attached to the pipes is an Airometer, the inner tank having a weight upon it of 100 pounds. This tank and weight is raised by the compressed air, and as soon as a Sprinkler is opened the pressure, being released, allows the tank and weight to fall, thus opening a valve and either starting the pump or releasing the water from tank or street mains. It is so arranged that an alarm will sound just before the valve is to be opened, notifying that there is a fire, or that more air must be pumped. The entire supply of air can be produced by a few strokes of the air pump. Manufactured by the

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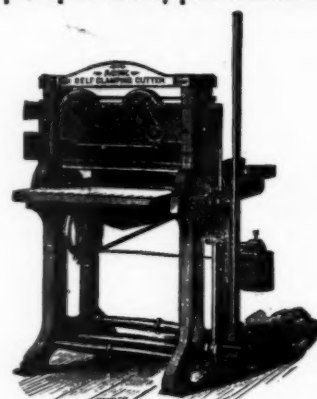
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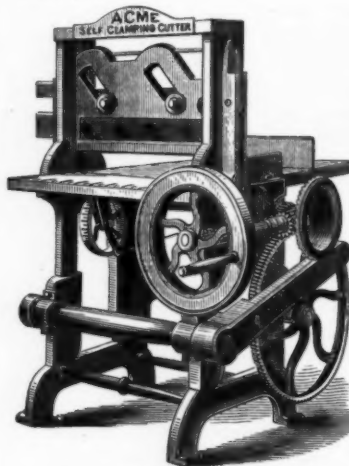
This line of cutters now enjoys the highest reputation for strength, power, durability, accuracy, simplicity, convenience and a superior principle of operation, and they are used by the leading printers, book binders, paper dealers, lithographers and paper manufacturers of the country. The essential features are

1. It is a perfect self-clamping cutter, clamping the paper and cutting at one operation, giving double the speed and saving one-half the work of cutting.
2. The clamp is made in two parts, the regular width being two and a half inches. Half of it may be taken off, allowing the back gage to come within one and one quarter inches of the knife, an invaluable feature for narrow work.
3. The back gage is moved by a metallic band (passing over a wheel) on which is also an indicator giving the exact distance from the edge of knife to back gage. The gage is moved very fast, with ease, and the indicator renders the operation of gaging absolutely certain.
4. A perfect system of side squares.
5. Economical and convenient round cutting sticks. Giving 50 cutting surfaces where there is only 8 on other makes.
6. A great number of little conveniences found in no other cutter. With every facility for taking up wear and adjusting correctly.
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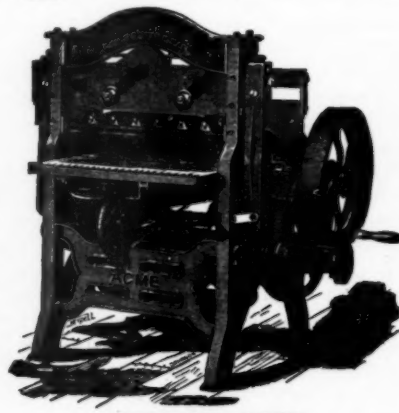


HAND WHEEL ACME.

Specially designed for those who require the heaviest work done, but have no steam power. It will cut any amount of paper that can be put under the clamp with the greatest ease, but is slower than the lever cutter. The balance wheel is in front, at the operator's right hand, and may be operated without change of position.

Prices, \$200. to \$1,500

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This machine is made very strong and heavy. Power is applied at both ends of the knife bar. Designed for the heaviest class of work. Unsurpassed by any first-class cutter made. Can be operated by hand with ease.

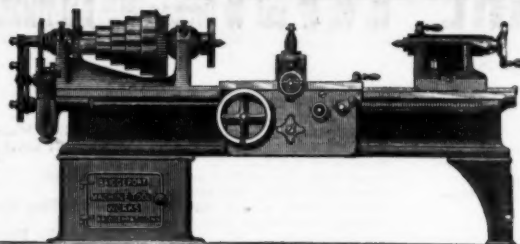
This cut shows the new Treadle Clamp recently applied to the Acme Cutters, by which the operator has the use of both hands while clamping the paper. A regular hand clamp may also be applied to any of these cutters if desired. Price of either style is \$75 extra.

Circulars giving full details and accurate engravings of the Acme Cutters will be sent on application.

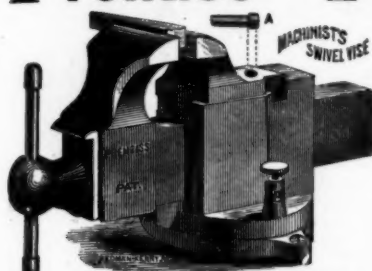


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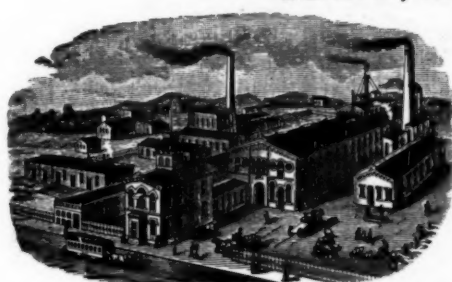
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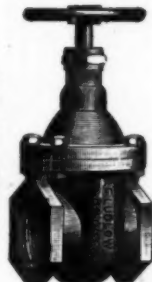
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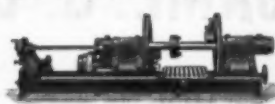
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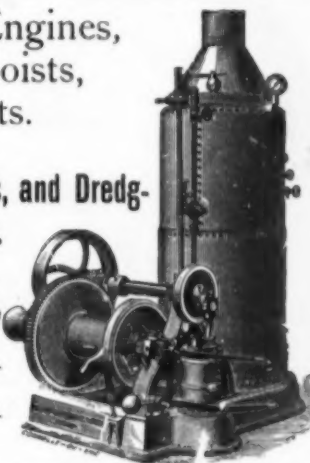
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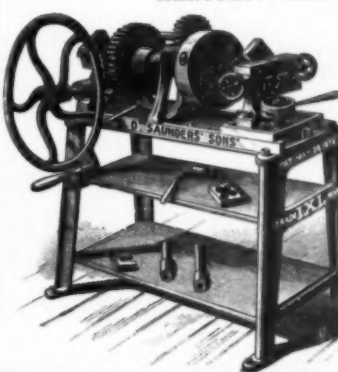
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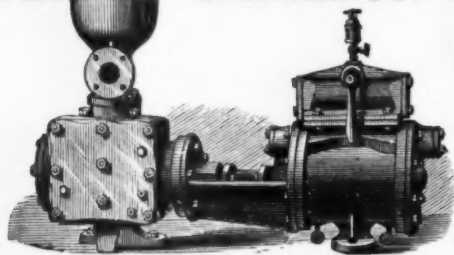
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Wire Clothes, Galvanized, 100 feet.....	LOCKMAN LATHES.	Boynton's Lightning Cross Cuts, new list.....dis 40 %	Boynton's Circular and Mill.....dis 40 %	Boynton's Ice.....dis 25 %	Boynton's Lightning Hand, Panel and Rip.....dis 25 %	Diston's Circular.....dis 40 %	Diston's Mill.....dis 40 %	Diston's Cross Cut.....dis 40 %	Diston's Hand, Panel, Rip, &c.....dis 20 %	Hubbard, Bakewell & Co. Circular Saws.....dis 40&5 %	Hubbard, Bakewell & Co. Cross Cut.....30c. ft.	Hubbard, Bakewell & Co. One-Man's, X Cut.....dis 40&5 %	Hubbard, Bakewell & Co. Mill Saws.....dis 40&5 %	Peace Circular and Mill.....dis 40 %	Peace Hand, Panel and Rip.....dis 25 %	Peace Cross Cuts.....dis 35 %	Peace Band Saws, all widths.....dis 10 %	Webster Cross Cut, with handles.....dis 25&10&10 %	Griffin's Hack Saws and Blades.....dis 30 %	White.....per doz \$1.05, dis 10 %	Saw Rods.....per doz list, dis 10&10 %	Stillman's Genuine.....per doz \$3.50 and \$5.50.....dis 10 %	Stillman's Imitation.....per doz \$3.25, dis 30&10 %	Common Lever.....per doz \$2.00, dis 30&10 %	Leach's.....No. 0, \$2.00; No. 1, \$1.50; dis 15 %	Hammer, Hotchkiss.....\$5.50, dis 10 %	Aiken's Genuine.....\$13.00, dis 50&10 %	Aiken's Imitation.....\$7.00, dis 50 %	Disston's.....dis 20 %	Morrill's.....No. 1, \$1.50; No. 5, \$3.50; dis 35&10 %	Hatch, Counter, No. 171.....per doz \$4.25, dis 37&10 %	Hatch, Tea, No. 161.....per doz \$15.00, dis 37&10 %	Union Platform, Keystone.....dis 45 %	Chicago Scale Co.....Special dis	Fairbanks.....dis 20 %	Forsyth Scale Co.....dis 45 %	Howe's.....dis 30&10 %	Chatillon's Grocers.....dis 40 %	Chatillon's Eureka.....dis 25 %	Family Universal.....dis 50 %	Family Favorite.....dis 30 %	Family Turnbull's.....dis 30 %	Scale Beams, List of Jan. 12, 1888.....dis 0 %	Adjust. Box Scraper (S. R. & L. Co.) \$6.50, dis 20&10 %	Box, 1 Handle.....per doz \$4, dis 10 %	Box, 2 Handle.....per doz \$6, dis 10 %	Foot, common.....dis 45&10 %	Ship, common.....per doz \$3, net	Wilson Mfg. Co.....dis 10 %	Douglas Mfg. Co.....dis 20&10 %	Disston's.....dis 40 %	Cowles Mfg. Co.....dis 50&10&10 %	Stanley Rule & Level Co's. Var. Hdl's.....dis 50&10 %	Stanley Rule & Level Co's. Black Hdl's.....dis 40&10 %	Ratchet.....dis 33& %	Clark's Patent.....dis 25 %	Shepardson.....dis 25 %	Flat Head Bright, less than 1 in.....80&10 %	Flat Head Bright, 1 in. and larger.....80 %	Round Head Bright.....75&10 %	Flat Head Brass.....75&10 %	Round Head Brass.....75&10 %	Flat Head Blued (add 2½ % to net).....40 %	Brass and Silver Capped.....75 %	Japanned Flat Head.....dis 60&10&10 %	Coach, Patent Gimlet Point.....dis 75 %	Coach, Common or Lag.....dis 60&10&10 %	Bed.....dis 10 %	Machine, Flat Head, Iron.....dis 55 %	Machine, Round Head, Iron.....dis 50 %	Bench, Iron.....dis 50&10 %	Hench, Wood, Beach.....per doz \$3.00, dis 10 %	Hench, Wood, Hickory.....dis 20&10 %	Hand, Wood.....dis 20&10 %	Hand Rail, Sargent's.....dis 60&10 %	Hand Rail, Humason, Beckley & Co.'s.....dis 40&10 %	Hand Rail, Am. Screw Co., list Jan. 1, '81.....dis 70 %	Jack (Wilson's).....dis 25 %	Standard Window Screens No. 1, per doz \$4; 2, \$5	"Door" No. 5, \$1.50; dis 50&10 %	"Window Corner Irons, No. 3, per doz \$1.50	"Door" No. 6, " \$3	"Door Latches, per dozen, \$3.60.....dis 50 %	Porter's Patent Window and Door Screen Frames:	PER DOZ. SETS.	In White.	Im. Bl'k Walnut.	No. 20.....\$2.75 \$3.25	No. 21.....2.25 4.00	No. 22.....5.50 6.75	No. 23.....6.00 7.50	No. 30.....9.00 11.00	Porter's Corner	No. 0 Corner and Sticks complete for a three-foot window, per doz sets.....\$4	No. 1. Set for Window, per doz sets Bronzed.....\$2.40; Nickel, \$5.62	No. 1½. " " per doz sets, Bronzed, \$3.25; Nickel, \$7.50	No. 4. " " per doz sets, Bronzed \$4.00; Nickel, \$8.00	No. ½. " " or door, per doz sets, Bronzed, \$1.20; Nickel, \$3.00	No. 4½. " " or door, per doz sets, Bronzed, \$2.00; Nickel, \$4.00	No. 2½. " " Door, per doz sets, Bronzed, \$6.75; Nickel, \$15.00	No. 3. " " per doz sets, Bronzed, \$12.00; Nickel, \$24.00	American (Cast) Iron.....dis 70&10 %	Pruning.....see Pruning Hooks and Shears	Barnard's Lamp Trimmers.....per doz \$4.00	Tinners'.....dis 15 %	Massachusetts.....dis 80&10 %	Seymour's.....dis 60&10 %	Jersey Shears.....dis 80 %	J. Wiss & Son, Nickle, 50&5 %; Japanned, 60&5 %	Sliding Door, M. W. & Co., List.....dis 45&10 %	Sliding Door, R. & E. list.....dis 60&10&10 %	Sliding Door, Patent Roller.....dis 60&10&10 %	Sliding Door, Pt. Roller, Hatfield's.....dis 60&10&10 %	Sliding Door, Russell's Anti-Friction.....dis 60&10&10 %	Also see Hangers.	SHOVELS AND SPADIS.	Ames, New List, July 1, 1887.....dis 15 %	Griffiths.....dis 50&5 %	Remington's (Lowman's Patent).....dis 30 %	Rowland's.....dis 60 %	Kimball's.....dis 35 %	Lippincott, new list.....dis 20 %	Husky, Bins & Co.....dis 15 %	Bonney's.....per doz \$10, dis 40&5 %	Stearns'.....dis 20&10 %	Ives'.....No. 1, \$1.50; No. 2, \$3.50 per doz, dis 55&10 %	Douglass'.....per doz \$9, dis 15 %	Wm. Rogers Manf. Co.....dis 50, 5&5 %	Holmes, Booth & Hayden.....dis 40&10&5 %	Brown Bros.....dis 40&10&5 %

# Hartford Silver Metal

We are now able to offer our customers a  
**Substitute for Solid Silver  
and Silver-Plated Ware**

that is perfectly reliable and will wear a life-time. The points of merit of this new article are: the Metal is very nearly AS WHITE AS SILVER; it is the SAME METAL ALL THROUGH; there is NO COLORING OR PLATING ABOUT IT; it costs about ONE-THIRD as much as Silver-Plated Ware; with the same care it will give as good satisfaction as Solid Silver or Plated Ware.

## Don't Fail to Send for a Sample Lot of This Ware and Try It!

Our line of SILVER-PLATED HOLLOW and FLAT WARE is as extensive as ever. We are continually adding new designs, and should be pleased to submit them to our customers.

### REMEMBER!

We Guarantee all Goods bearing our Trade Mark.

# The WM. ROGERS MFG. CO.

Drawer 30, HARTFORD, CONN.

# Hartford Silver Metal

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## Substitute for Solid Silver and Silver-Plated Ware

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## REMEMBER!

**We Guarantee all Goods bearing our Trade Mark.**

# The WM. ROGERS MFG. CO.

Drawer 30, HARTFORD, CONN.



**SPORTSMEN'S CLOTHING!**

**ALSO CLOTHING FOR**  
Civil Engineers, Surveyors, Ranchmen,  
Miners, Lumbermen, Etc.,

Manuf. from Best CORDUROY, MACKINTOSH,  
CANVAS, MACKINAW, LEATHER, Etc.

WRITE FOR CATALOGUE.

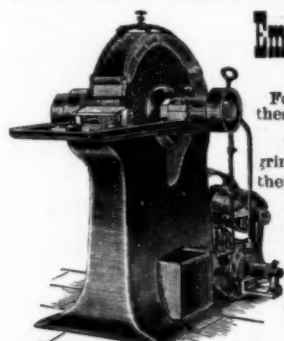
**UPTHEGROVE & McLELLAN, Valparaiso, Indiana.**

**THIS** is our Skeleton Coat, of strong material, and weighs but 15 oz. Will mail it to you for \$2. Send us breast measure.

**Emery Wheel Tool Grinder.**

Pat. Sept. 23th, 1893.  
Four sizes of each of these designs.

Grinds much FASTER than grindstones and will soon save their cost. WHEELS ARE MADE TO RUN IN WATER. Will ship on their merits for 30 days' trial, and if not satisfactory can be held subject to our order.



SPRINGFIELD GLUE & EMERY WHEEL COMPANY,



SPRINGFIELD, MASS.

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President.

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Secretary.

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**NIMICK & BRITTAN MAN'FG CO.**

**PITTSBURGH, PA.**

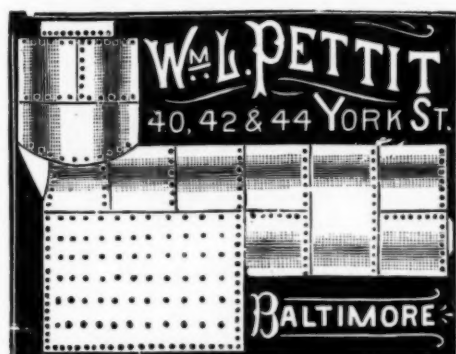
**Builders' Fine Hardware**

**Patent Burglar Proof Door Locks,**

**KNOBS AND ESCUTCHEONS,  
Padlocks and Scales.**

Will mail our Large Catalogue on Receipt of 50c Postage.

CONDENSED CATALOGUE SENT FREE ON APPLICATION.



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MANUFACTURERS OF

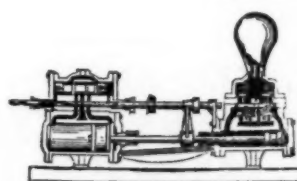
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**Steam Boilers,**

**Tank and Sheet Iron Work.**

Estimates furnished for New Work and Repairs.

I make a specialty of SCOTCH BOILERS, the most economical in fuel, requiring very little repairs.



**THE BURTON  
Steam Pumps**

Are the BEST because they are the Most Durable and are Guaranteed to be

**Perfectly Reliable.**

RUN FOR YEARS WITHOUT REPAIRS AS TESTIMONIALS WILL SHOW.

Write to C. H. BURTON, Cleveland, O., for circulars, etc.

**The Little Giant Excavator.**

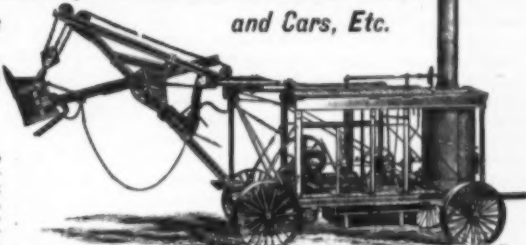
—A LONG FELT WANT SUPPLIED.—

**For DITCHING, EXCAVATING**

Loading Wagons

and Cars, Etc.

50 TO 100 PER CENT. SAVED  
IN LABOR.



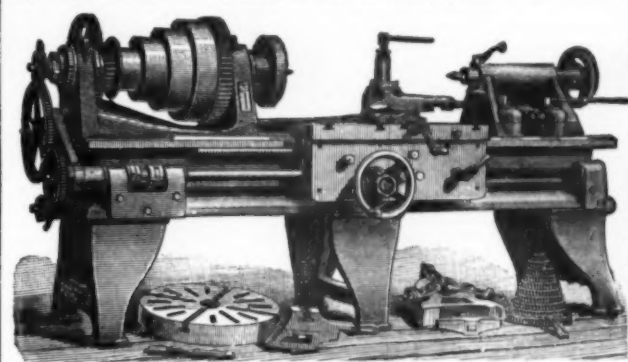
Capacity of Machine 500 to 700 cubic yards per day. Self propelling. Easily moved. Being built entirely of steel, is both strong, light and a very substantial machine. Can be used on flat-boat for dredging ditches, irrigating or digging canals. Contractors and railroads promptly furnished with estimates for excavators of every description.

Address **VULCAN IRON WORKS, Toledo, Ohio.**

**POND MACHINE TOOL CO.**

MANUFACTURERS OF

**Iron-Working Machinery,  
Worcester, Mass.**



Special railroad Tools, Lathes, Planers, Upright and Radial Drills Boring Mills, Gear Cutters, Milling Machines, Patent Shaping Lathes, Hand Punches and Shears, Planer Chucks. Special machinery in great variety. Estimates furnished. Send for catalogue.

**FOR SALE CHEAP!**

**40 Horse Power VERTICAL BOILER.**

This Boiler was built to order, of very best materials and workmanship; has double-riveted seams; was used but a short time, and is much better than most of the new boilers now made. Cost to build, \$650. For sale at HALF-PRICE, with fixtures, &c. Is a RARE BARGAIN. Ready for immediate delivery. Also, 18-horse HORIZONTAL ENGINE; very strong and heavy.

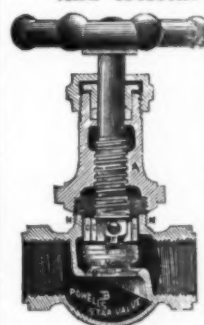
**JOSEPH B. MATTHEWS,**

41 Centre Market Space BALTIMORE MD.

Many Steam Fitters and Machinists are of the opinion that the

**POWELL PATENT  
REGRINDING "STAR"**

And Crescent Globe Valves



are the very best in use. The Star Valves are also made extra heavy for Steam Boat use. Every Valve warranted for one year if handled and used with ordinary care.

**POWELL'S PATENT**

SIGHT-FEED

**LUBRICATORS**

and Glass Engine Cups

insure a great saving in oil. Specifications should call for

—THE—

**Powell Star Valves.**

**WM. POWELL & CO., Manufacturers,**

50, 52 and 54 Plum Street, Cincinnati, Ohio.

Sold by **THOS. C. BASSHOR & CO.,**

BALTIMORE, MD.

—THE—

**Sigourney Drill,**

AND

10 inch Universal Hand Lathe

MANUFACTURED BY

**The Sigourney Tool Co**

**HARTFORD, CONN.**

**Special Tools and**

**Light Machinery**

Built by the Day or Contract.

Send for Circulars.

Correspondence Solicited.



**TOOLS for Machinists, Amateurs, Jewellers, Model Makers, Blacksmiths, Carpenters, Coachmakers, etc.** Send 20 cts. for new Metal Worker's Catalogue, 300 Pages. Wood Worker's Catalogue free.

**FALLMAN & McFADDEN, Philadelphia, Pa.**

—ESTABLISHED 1865.—

**Steam Boilers**

**JOHN T. COLEMAN & SONS,**

**Steam Boiler Works,**

Cor. Holliday and Pleasant Sts., Baltimore.

Manufacturers of all kinds of Steam and Bath Boilers, Smoke Stacks, Water Tanks, Lard Kettles, &c. Particular attention given to repairs.

1837. **NOVELTY WORKS.** 1883.

**JAMES MURRAY & SON,**

**Machinists and Millwrights**

Engines and Boilers, Mills of all kinds, Marine Railways, &c. Improved Clay Tempering Machinery, Steam or Horse Power. Phosphate Machinery, Crushers, Rollers, Mixers, &c., &c.

40, 42 & 44 York Street,

NEAR LIGHT, BALTIMORE.

Repairing of all kinds promptly done.



## Business Chances.

For the purpose of making the **MANUFACTURERS' RECORD** a still more valuable medium of communication between its readers North and South, we will publish, **FREE OF CHARGE**, short advertisements, not exceeding 40 words, from those in the South who have good business openings that they wish to bring to public notice, capital wanted for industrial enterprises, &c., &c.; while readers in other sections who desire to engage in manufactures at the South are also invited to use these columns, without cost, either in seeking information regarding the advantages and special claims of different localities, or for asking about good openings for men and money. This department is also free for Southern manufacturers who wish to advertise for mill managers superintendents, engineers, &c.

In corresponding with any of these advertisers please mention the **Baltimore Manufacturers' Record**.

Parties advertising in this column must have replies sent to their own address, and not to care of Manufacturers' Record, unless stamps are sent for forwarding replies. Advertisements sent not in accordance with this requirement will not be inserted.

A GOOD OPENING for a journalist. A half interest in a live successful paper in the South is for sale. The owner is a lawyer, and desires to give his whole time to his profession. His partner, who is a practical printer, will remain in the business. The paper will pay handsomely. Address Editor, care **MANUFACTURERS' RECORD**.

**MACHINIST WANTED.**—A machinist with small capital, who desires to locate in the South, can learn of a good chance by addressing P. O. Box 23, Maryville, Tenn.

**RAREST CHANCE** in a life time for hotel man with energy and capital to get rich. A North Carolina city, noted for its thrift and growth, and bad hotel facilities, is in positive need of a first-class hotel, run by an experienced hotelist, who can furnish half enough capital to erect the building; the balance will be readily subscribed by prominent citizens. Address X. Z., care of **MANUFACTURERS' RECORD**.

**FURNITURE OPENING.**—A fine opening for a furniture business in a live North Carolina town, of nearly 10,000 population, and where there would be only one competitor. Splendid prospect for the manufacture of chairs and other furniture. Address, stating amount of capital you can invest, No. 329, care **MANUFACTURERS' RECORD**.

**ENGRAVER WANTED.**—A young, unmarried, designer and engraver, of moderate talent, wanted. State amount of salary desired, &c. Address immediately, Oldham Publishing House, Winston, N. C.

**TWO** New England mill men, thoroughly understanding bleaching, dying and finishing cotton goods, desire correspondence with manufacturers as to localities in the South possessing advantage for starting this business, what inducements offered, &c. Address D. and B., care **MANUFACTURERS' RECORD**.

**WANTED.**—A sober, energetic and competent man, with some capital, to take an interest in, and assume the treasuryship of a coal mining and shipping company in Alabama. His duties will be to attend to the sales of coal and coke, with office at Atlanta, Ga. A fine opening for the right man, with whom good terms will be made. Address Coal Co., care **MANUFACTURERS' RECORD**.

**WANTED.**—At the Emily Mines, Spotsylvania county, Va., a first class machinist, one who understands handling pumps and pumping machinery, keeping machinery in repair, &c. To a first-class man, first-class wages will be paid. No one who drinks liquor of any kind need apply. Address Thomas J. McSpieden, Superintendent, Mine Run, Orange county, Va.

A **MANUFACTURER**, or wholesale house can employ on reasonable terms, a successful Attorney and Collector, of six years' practice, to attend to collections and legal business in the South. Best reference given. Address Attorney, care **MANUFACTURERS' RECORD**.

**WANTED.**—An active young man of experience in the manufacture of smoking tobacco. Must have \$4,000 to \$5,000, to join a gentleman of equal capital, to establish a manufactory South. Address Jones, care of Walton & Ewin, Nashville, Tenn.

**BEING** interested in quarrying fine Tennessee marble, I would like to correspond with some one having experience in sawing marble and with capital to invest, with a view to erecting a mill in connection with quarry. Address P. O. Box 72, Rogersville, Tenn.

**PARTNER WANTED** with \$5,000 to start a stove factory by parties representing over \$50,000 in real estate and having ample experience. A large profit can be made. Will guarantee the investment and \$5 per annum. Address Enterprise, Lock Box 27, Warrenton, Va.

**WANTED.**—By an energetic, live young man a partner with \$10,000 to \$20,000, to engage in the tobacco business in Piedmont, North Carolina. Best of reference given, showing him qualified to handle business. Address Tobacco, care **MANUFACTURERS' RECORD**.

**WANTED** by a qualified mining engineer a position as superintendent or manager of a mine in the South. Accurate mine surveys made and ventilation attended to. Address Geo. D. Stonestreet, Mining Engineer, Box 397, Birmingham, Ala.

A **FIRST-CLASS MOULDER** with moderate capital, also a pattern-maker, can secure an interest in a paying business in the South. Business now in fine condition, but without sufficient facilities to do all the work that can be secured. Additional capital needed. Address H. & Co., care **MANUFACTURERS' RECORD**.

**WANTED.**—A position in a sash and blind factory as foreman or master-workman; 12 years' experience; well up in all kinds of wood-working; can give best recommendations. W. T. L., care **MANUFACTURERS' RECORD**.

A **YOUNG MAN**, engaged in designing and superintending the construction of machinery, wishes to hear of an opportunity in the South to invest \$2,000 to \$3,000 and services. David Eldredge, care of Ed. Wolf, 572 Eighth Avenue, New York City.

**FOR SALE.**—I offer for sale an interest in a well-established Foundry and Machine Business. A good location; a growing business; valuable patents and patterns. Control of the Southern States on a valuable specialty. For particulars address W. J. care **MANUFACTURERS' RECORD**.

**WANTED.**—A partner with \$5,000 or \$6,000 to engage in a very profitable manufacturing business. Special inducements will be given to right party. Large demand and good profit. For particulars address H. L. Freeman, Concord, N. C.

I **WANT** a foreman for a furniture factory. J. H. Taylor, Greenville, S. C.

**TWO WATER POWERS** on same stream and in sight of each other for sale. Fall about 18 feet, and about 30 horse power each. One is now running a one set woolen mill, building new, a stories, and large enough for two set mill. Well located. At the other place is a mill house. Good location for business of any kind. In connection with these water powers there are 200 acres of good land, with two dwelling houses, barns, and all other out-buildings. Will sell all together or separately. For full description write to Henry Miller & Son, Jonesboro, Tenn.

**CORPORATIONS**, or individuals, wishing the services of a thorough business man and accountant to act as manager, purchasing agent, or other responsible position, may address the undersigned. Experienced in the management of large numbers of men. Competent to fill almost any position. Best city references. G. C., 130 Belleville ave., Newark, N. J.

I **WISH** to meet with a capitalist with a view to manufacture special machinery, which will be secured by patents, for the manufacture of silk, cotton and leather goods, or to build machinery and manufacture the goods. Special information to correspondents. Address P., care **MANUFACTURERS' RECORD**.

### Get the Best at First.

The Holyoke Machine Company, of Worcester, Massachusetts, advertise in this issue their well-known Hercules Water Wheel. This wheel has many points of merit that strongly commend it to the attention of those who use water power. The most thorough tests have demonstrated its many good qualities. In Holyoke it is the standard water wheel, the aggregate horse power of the Hercules wheels in operation there being greater than that of all other wheels combined. These wheels are very popular in the South as well as in the North, having been in use for many years in a large number of Southern mills. There are four of the Hercules wheels now in operation in the big cotton mills of the Eagle & Phenix Manufacturing Co., Columbus, Ga., and Mr. John Hill, of that company, in writing, Feb. 25, 1885, to the Holyoke Machine Co., said: "Within the past four years I have ordered four 'Hercules' wheels, all of which have given the purchasers entire satisfaction. Three of the wheels are on regular duty in the Eagle & Phenix Mills. The first wheel ordered did so well that a 'Hercules' wheel has been added each time a new wheel was wanted. In the Eagle & Phenix Mills I supervise twenty water wheels of six different styles. The 'Hercules' is by far the most durable and best made wheel in use here, and, in fact, I know of no wheel its equal mechanically. It is all that can be desired in economy of water. In fact, it is a strictly first-class wheel in every way, and the wheel to buy, use and depend upon."

That is a pretty strong letter, but it is only a sample of letters received by the manufacturers of this wheel. Among the recent shipment of wheels have been two—one a 54-inch and one of 60-inch—to a Georgia cotton mill. Two Hercules wheels are being put in at Natick Cotton Mill, and one at the Arctic Mill of B. B. & R. Knight near Providence. This will make eleven wheels furnished to this well-known firm, one of the most prominent in the manufacturing line in New England. Hercules wheels are sold in England, Ireland and Scotland, and on the Continent, a cable order having been received only a few days ago for one to go to France. The manufacturers say: "The Hercules gives the most power for its size and the highest average percentage from full to one-half gate of any wheel ever made." Their advice to all users of water wheels is to "get the best at first." If you are interested in water wheels, if you want a new wheel or a larger wheel, or a better wheel than you are using, write to the Holyoke Machine Co., Worcester, Mass., for catalogue No. 3.

Managers of mills, factories, furnaces, mines, etc., and parties starting manufacturing enterprises, and needing machinery or supplies of any kind, will find it profitable to consult the advertising columns of the **MANUFACTURERS' RECORD**. Its pages contain names of the best houses in the country among manufacturers of and dealers in machinery and mill supplies.

REPAIRING A SPECIALTY.



### ATLANTA SAW WORKS.

Manufacturers of every variety of

## SAWS!!

And dealers in

## SAW MILL SUPPLIES

Workmanship guaranteed to give perfect satisfaction.

Atlanta, Ga.

**BUCKEYE**  
**BOILER & BRIDGE WORKS,**  
CLEVELAND, OHIO.  
Manufacturers of all kinds of  
**WROUGHT IRON BRIDGES.**  
also, BOILERS, TANKS, STILLs,  
**BLAST FURNACES,**  
and all kinds of Plate Work.  
**Jail Cells, Bank Vaults,**  
and **HEAVY GIRDERS** for Buildings.  
Estimates Furnished upon Application.

## FOR SALE.

Cheap.

Second Hand.

Good Condition.

PLANNER.

18 in x 20 in. x 3 1/2 feet.....\$125

**HORIZONTAL BORING MILL.**

40 in. swing, 56 in. between centers....\$420

**EDWIN HARRINGTON, SON & CO.**

North 15th Street and Pennsylvania Avenue.

PHILADELPHIA, PA.

**DAVID RICE,**  
Atlanta, Ga.

**Machine \* Tools**

AND

**Railroad Shop Equipments, Mining Tools, &c.**

Southern Agent Rand Drill Co., Diamond Emery Wheel and Machine Co., L. B. Flanders Machine Co., Hazard Mfg. Co.

## FOR SALE.

A Portable 20 Horse-Power Engine and Saw Mill, with large lot of timber, if desired, within 6 miles of Farmville, and 3 from railroad. Also one 8 Horse-Power Portable Engine, on skids, Horizontal Boiler, Talbot's make. It is now mounted on truck and used for threshing wheat. Address

**FARMVILLE MANUFACTURING CO.,**  
Farmville, Virginia.

**ENGINEERS and STEAM USERS**  
**ATTENTION!** The celebrated Cyclone Steam Flue Cleaners may be had at the Supply House of **THOS. C. BASSHAW & CO.,** 28 Light Street, Baltimore, Md.

## SOUTHERN INVESTMENT.

**CLARENCE GORDON,**

4 & 6 Pine Street, New York.

**SELLS OR CAPITALIZES** large, valuable Southern Properties. On receipt of full description and purpose, a circular of business system will be mailed to applicant. Interests of Sellers and Investors held in equal regard.

**CAPITALISTS AND ACTUAL OPERATORS** seeking Southern Investment in Timber, Grazing, Mineral, or Agricultural land, or in Manufacturing property, may consult a line of Reports, made from examination by Experts of this office, answering exhaustively and with exactness the most critical inquiry.

Call or Correspondence Invited.

**HEADING, BARREL, KEG AND**

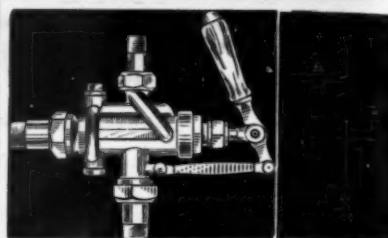
## STAVE MACHINERY

NEW AND SECOND-HAND.

**JOHN S. ORAM,**

165 RIVER STREET, - - - CLEVELAND, O.

Send for Catalogues for 1885 and Price-Lists.



**Buckeye \* Injectors,**

—Lubricators, Wrenches, Etc.—

For circulars address **CROSBY, BURTON & CO.**

204 Lake St., Chicago, Ills.



## WESTERN

## \* FORGE \*

AND

## TOOL WORKS

MANUFACTURERS OF

**Bridge & Roofing Bolts**

**BOLT ENDS,**

Wrought and Cast

**WASHERS,**

1220 and 1222 Collins St.

**ST. LOUIS, MO.**

## THE BAY LINE

—FOR—

**FORTRESS MONROE, NORFOLK and the SOUTH.**

The Bay Line comprises the New and Elegant Steamers

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Black Lamp, coach painters.....	75@30c
Black Lamp, ordinary.....	75@40c
Black Ivory Drop, fair.....	12@15c
Black Ivory Drop, best.....	30c
Blue Paint, in oil.....	30c
Blue Prussian, fair to best.....	30@40c
Blue Prussian, fair to best, in oil.....	35@40c
Blue Chinese, dry.....	70c
Blue Ultramarine.....	15@35c
Brown, Spanish.....	10c
Brown, Van Dyck.....	8@15c
Green, chrome, in oil.....	9@12@15c
Green, Paris.....	good, 20c; best, 25c
Green, Paris, in oil.....	good, 20c; best, 25c
Iron Paint, bright red.....	75@15c
Iron Paint, brown.....	75@15c
Iron Paint, purple.....	75@15c
Iron Paint, ground in oil, bright red.....	75@15c
Iron Paint, ground in oil, red.....	75@15c
Iron Paint, ground in oil, brown.....	75@15c
Iron Paint, ground in oil, purple.....	75@15c
Linseed Oil, raw.....	48c
Single Boiled.....	50c
Double.....	52c
Mineral Paints.....	25@40c
Orange Mineral.....	10c
Red Lead, American.....	65@75c
Red Venetian, (English) dry.....	\$1.50 to \$2.75
Red Venetian, in oil.....	assorted cans, 9c; kegs, 6c
Red Indian, dry.....	8@12c
Rose Pink.....	10@13c
Sienna, American, raw.....	4c
Sienna, burnt, in oil.....	8@15c
Sienna, raw.....	8@15c
Umber, burnt, in oil.....	8@15c
Umber, burnt, in oil.....	8@15c
Umber, raw.....	3 1/2@7 1/2c
Umber, raw, in oil.....	8@15c
Vermilion, Chinese.....	90c
Vermilion, English.....	60@65c
Vermilion, American, common.....	15c
White Lead, American, pure dry.....	65@65c
White Lead, American, pure in oil.....	65@65c
White, Paris, English, prime.....	in brls. 1 1/2@2c
Yellow Ochre, French.....	\$1.75
Yellow Ochre, French, in oil.....	ass't'd cans, 9c; kegs, 6c
Yellow Ochre, American.....	in brls., 1 1/2@1 1/2c
Yellow Chrome.....	2@18c
Yellow Chrome, in oil.....	9@12@18c
Zinc White, American, No. 1, dry.....	6@7c
Zinc White, American, No. 1, in oil.....	6 1/2@9c
Zinc White, French (Parish) dry.....	9@12c
Zinc White, French in oil.....	10@14c

## OILS.

Bleached W. Sperm oil.....	95@1 00
Nat.....	90@ 95
B. W. Elephant oil.....	75@ 60
" Whale oil.....	60@ 62
Prime Lard oil.....	53@ 55
Extra No. 1 Lard oil.....	50@ 50
Lubricating oils.....	12@ 25
Miners' oil.....	45@ 50
W. Pressed Fish oil.....	32@ 34
Neatsfoot oil.....	55@ 75
Steam-refined Cylinder oil.....	40@ 55
Best Filtered.....	65@ 65
Signal oil.....	55@ 50
Paraffine.....	12@ 20

## SUNDRIES.

Benzine.....	7 gal., 8@10c
Turpentine.....	7 gal., 39c
Chalk, block.....	75c
Dryer patent Am'n.....	ass't'd cans, 8c; keg, 7c
Frostings.....	40c
Glue, white.....	18@35c
Glue, sheet.....	14@20c
Glue, ordinary.....	9@12
Glaziers' Points, zinc.....	8c
Gum, Copal.....	36c
Gum, Damar.....	25c

## METALS.

## TIN PLATES.

## BLOCK TIN.

"Lamb and Flag," and "Straits."

Large Pigs.....	24
Small Pigs.....	25
Bars.....	28

## TINNERS' SOLDER.

No. 1 Refined.....	13
Market Half-and-Half.....	14
Strictly Half-and-Half.....	14 1/2

## ROOFING PLATS.

IC, 14x20, Choice Charcoal Terne.....	5 50
IX, 14x20, " " " ".....	7 00
IC, 20x28, " " " ".....	11 00
IX, 20x28, " " " ".....	14 00
IC, 20x28, Extra fine quality, charcoal roofing, genuine "old style" redipped.....	14 00
IX, 20x28, " " " ".....	18 00

## COKE PLATES.

IC, 10x14, bright, "B. V." grade.....	5 00
IC, 14x20, " " " ".....	5 00
IX, 14x20, " " " ".....	6 50
IC, 10x20, Gitters.....	8 50

## SHEET ZINC.

In casks of 600 lbs., 75 lb.....	5 1/2
In smaller quantities, 75 lb.....	5 1/2

## TIN PLATES.

IC, 10x14, Charcoal.....	5 50
IX, 10x14, " ".....	7 50
IC, 12x18, " ".....	5 70
IX, 12x18, " ".....	7 70
IC, 14x20, " ".....	5 50
IX, 14x20, " ".....	7 50
IX X, 14x20, " ".....	9 50
IX X X, 14x20, " ".....	11 50
IX X X X, 14x20, " ".....	13 50
IX, 20x28, " ".....	18 00
DC, 100, Plate.....	5 50
DX, 100, " ".....	7 50
DX X, 100, " ".....	9 55
DX X X, 100, " ".....	9 55

## BABBITT METAL.

A 1.....	15
No. 1 Ordinary.....	9
Antimony.....	18
Excelsior Babbitt Metal, No. 2.....	10
" " " ".....	9

## LEAD.

Pig.....	4 1/2
Bar, (15 oz. bars).....	6 1/2
Sheet.....	7
Pipe, full coils.....	7

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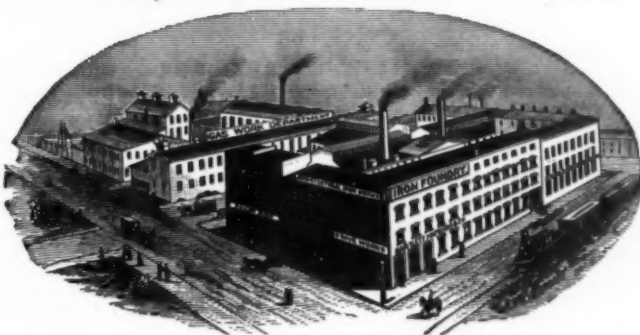
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This is to certify that I have made a careful examination of "Warner's Combined Purifier and Heater of Feed Water" in practical operation at the "Harris House" and "Post Building," in this city, and do not hesitate to pronounce it the *best* machine for the purpose ever invented. By its use the water goes into the boiler free from all impurities and heated to the boiling point under full boiler pressure, and as the result of the injection of pure water, the boiler is freed from scale and kept clean, while a large saving is made in fuel by the removal of the scale and heating the water to the boiling point *before it enters the boiler*. By the use of this machine the necessity of "shutting down" in order to blow out and clean the boiler is wholly obviated, as the impurities are all collected in the bottom of the machine, which can be blown out as many times a day as the engineer thinks proper without interfering with the workings of the boiler. I confidently commend this machine to all persons who own or use steam boilers, and am satisfied that its use will prolong the life of the boiler and make a handsome saving in the use of fuel.

(Signed) JOHN H. WILKERSON,

Inspector of Steam Boilers for District of Columbia, 220 7th Street, S. E.

"HARRIS HOUSE," COR. PENNSYLVANIA AVENUE AND E STREET, N. W.

WASHINGTON, D. C., June 23, 1885.

This is to certify that one of "Warner's Purifiers and Heaters of Feed Water" has been in use on one of the boilers of the Harris House, in this city, for three months, and has proved a perfect success. The boiler upon which the machine was placed was at the time covered with a heavy scale composed of animal and vegetable matter, lime, &c., which, by the use of this machine, has been entirely removed, the boiler being now as clean as when it came from the boiler-maker. This has been entirely accomplished, without the use of chemicals, by the injection of pure water through the "Purifier and Heater." This machine injects the water into the boiler heated to the boiling point under full boiler pressure, and by this means, together with the removal of the scale, results in a large saving of fuel. It is also *invaluable in the purification of the water for laundry purposes*. The machine is self-acting, and prevents the necessity of "shutting down" in order to blow out the boiler, as the impurities are all concentrated in the bottom of the machine, and can be blown out through the machine as often during the day as the engineer may deem advisable without interfering with the working of the boiler. I am convinced that its use will prolong the life of all boilers upon which it may be placed, save a large percentage of fuel, decrease the danger of explosion, purify the water for all purposes, and give general satisfaction. I confidently commend it to all hotels using steam and to owners of steam boilers generally as a much needed improvement that will do the work claimed for it thoroughly.

(Signed) JOHN H. HARRIS, Proprietor of Harris House, Washington, D. C.

WASHINGTON "POST" BUILDING, WASHINGTON, D. C., June 23, 1885.

This is to certify that one of "Warner's Purifiers and Heaters of Feed Water" was placed upon the boiler of the Post Building about 60 days ago as a test. At that time the boiler was covered with a heavy scale of animal and vegetable matter, lime, &c., which it was impossible to prevent. By the use of this Purifier and Heater, which injects the water into the boiler free from all impurities and heated to the boiling point, the scale has been removed and the consumption of coal reduced. The machine works itself and is invaluable as a purifier of water to all branches of business requiring pure water, such as hotels, laundries, &c., and a much needed adjunct to all steam boilers, prolonging their life, decreasing the danger of explosion and effecting a large reduction in the consumption of fuel. I confidently commend Warner's Purifier and Heater to all owners of steam boilers, being confident that their interests will be subserved by its use.

(Signed) J. FRANK MCGUIRE, Superintendent and Engineer Post Building.

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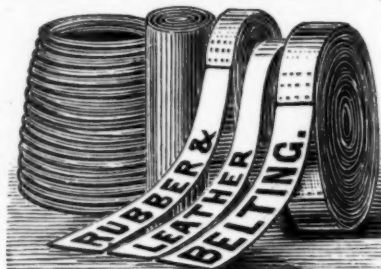
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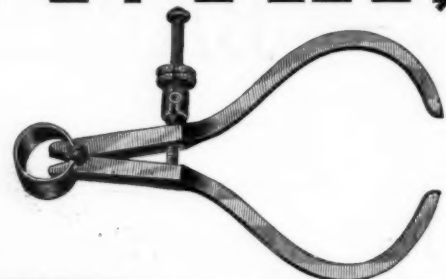
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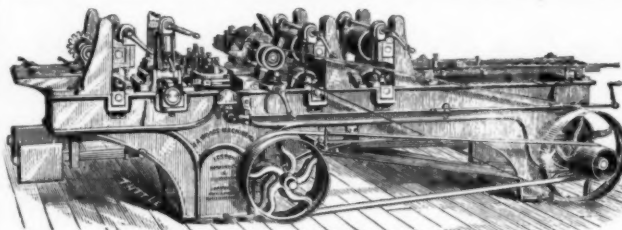
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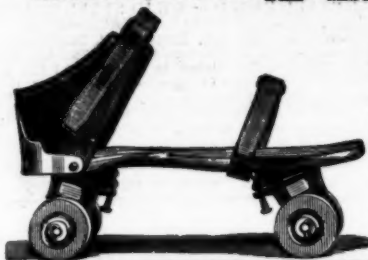
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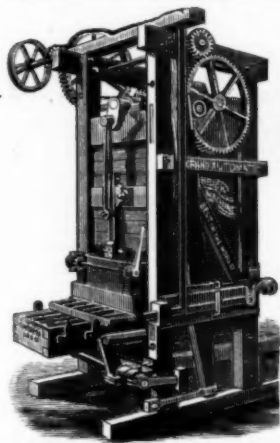
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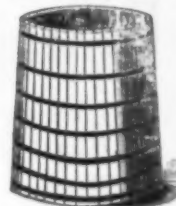
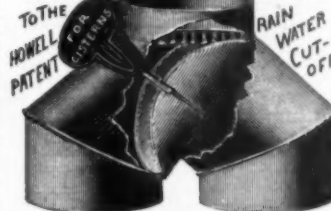
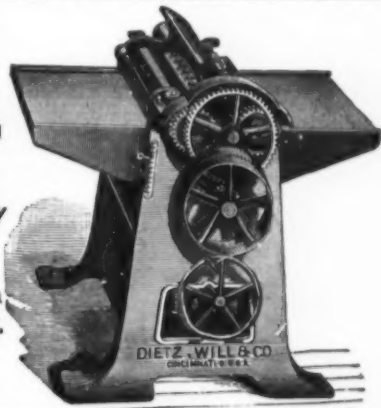
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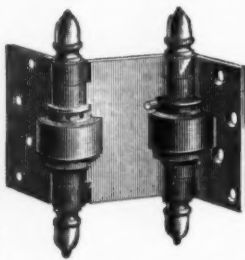
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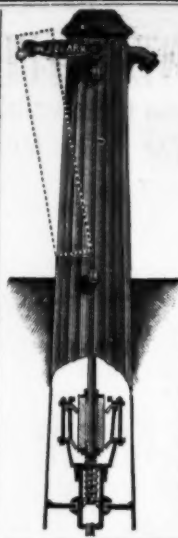
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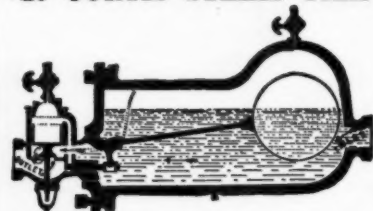
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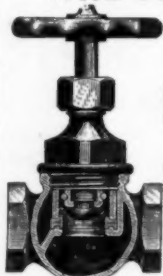
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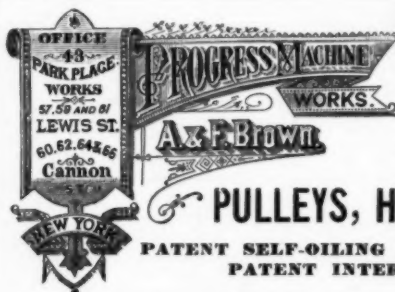
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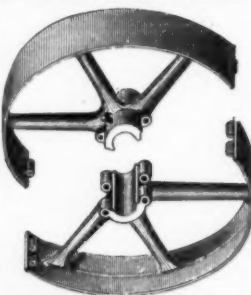
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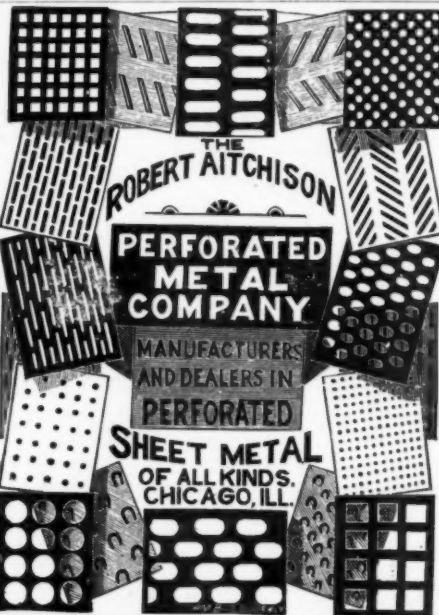


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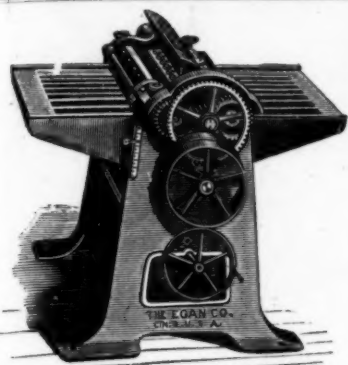
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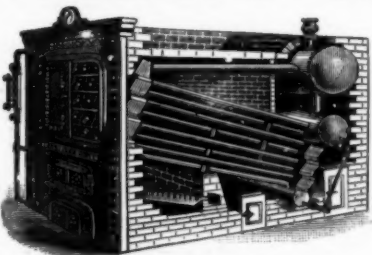
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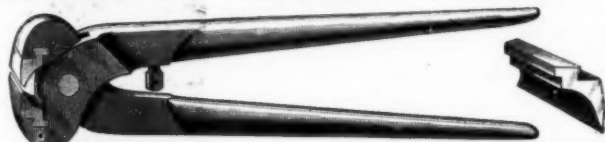
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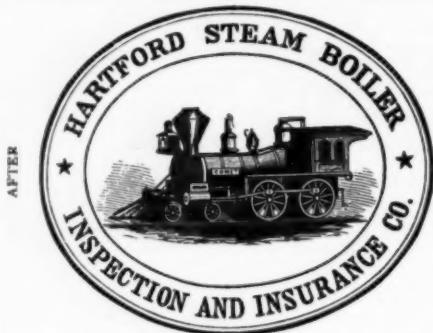
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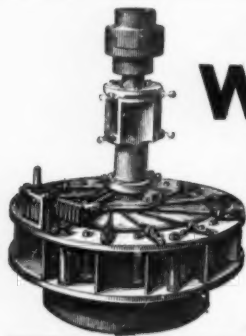
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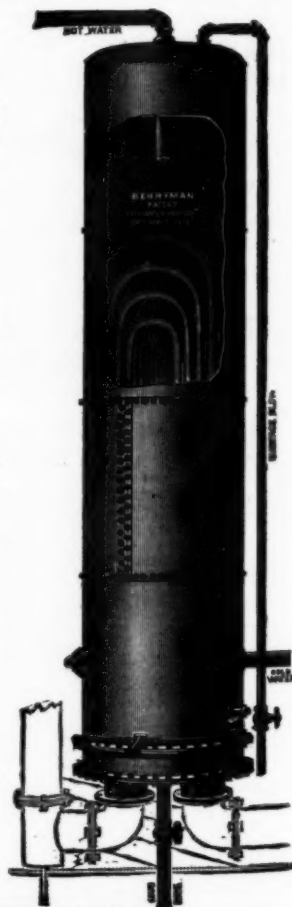
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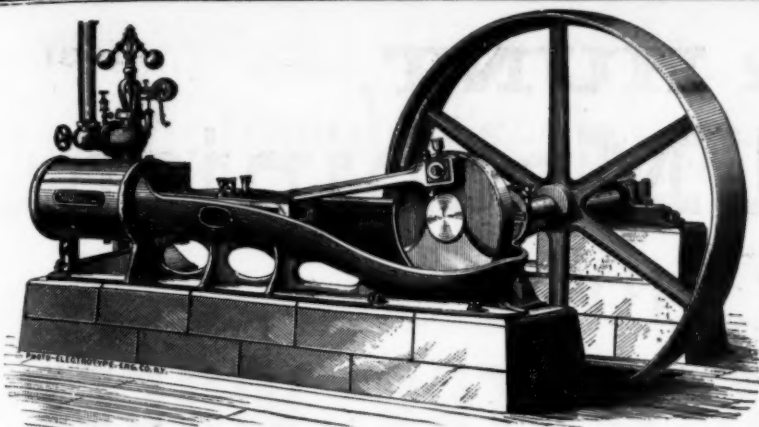
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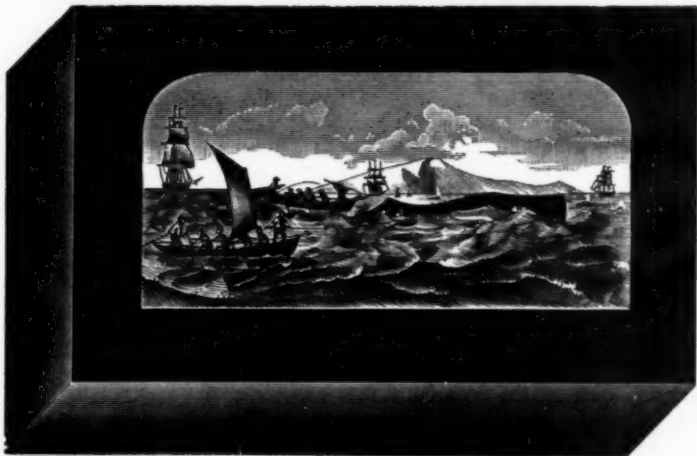
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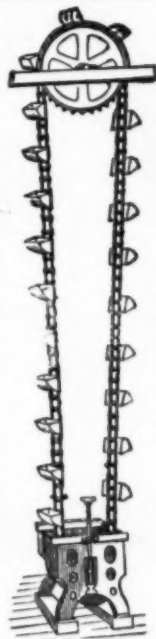
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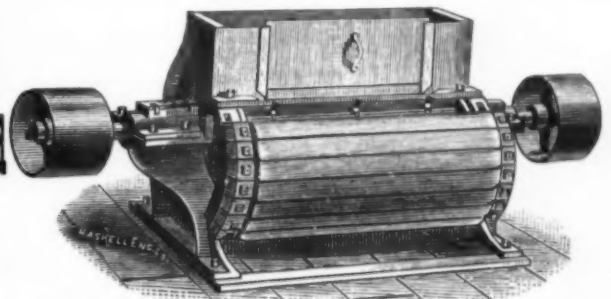
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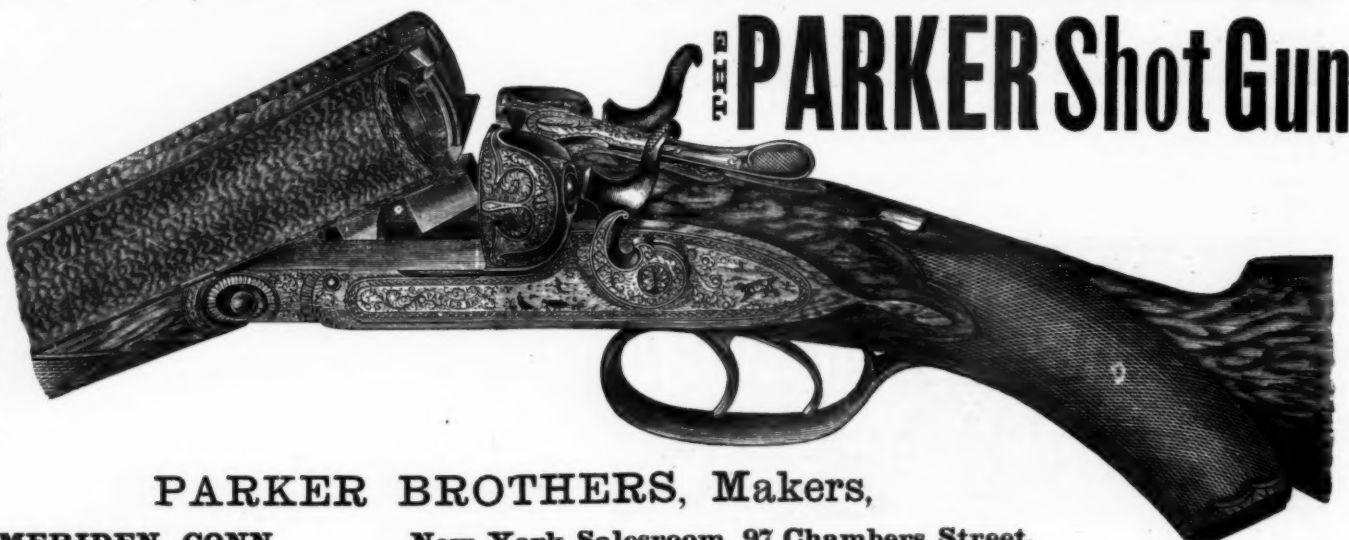
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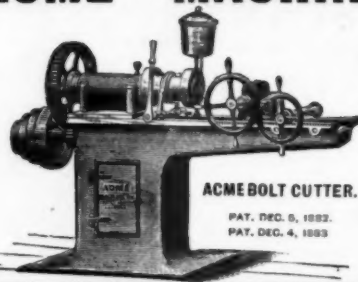
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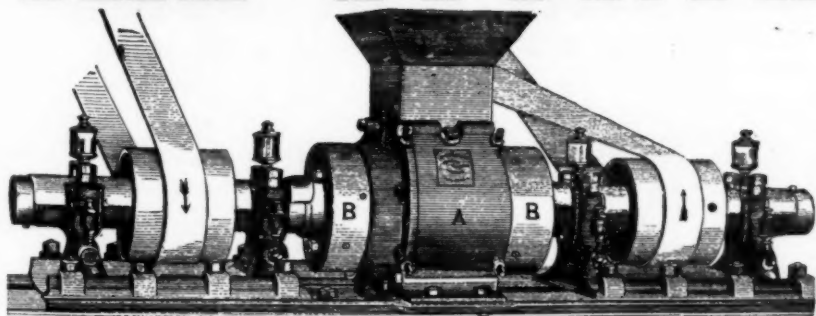
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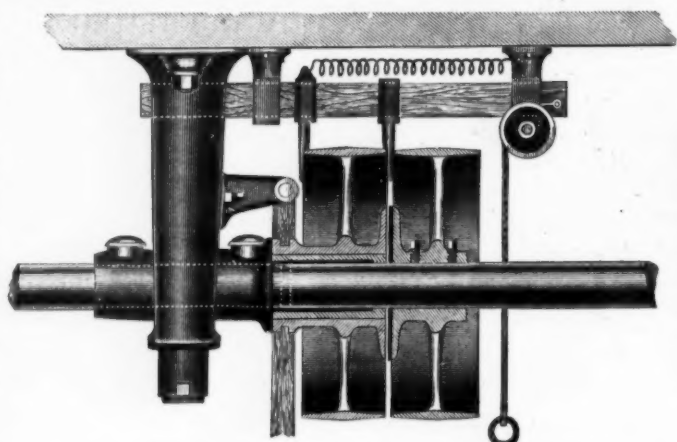
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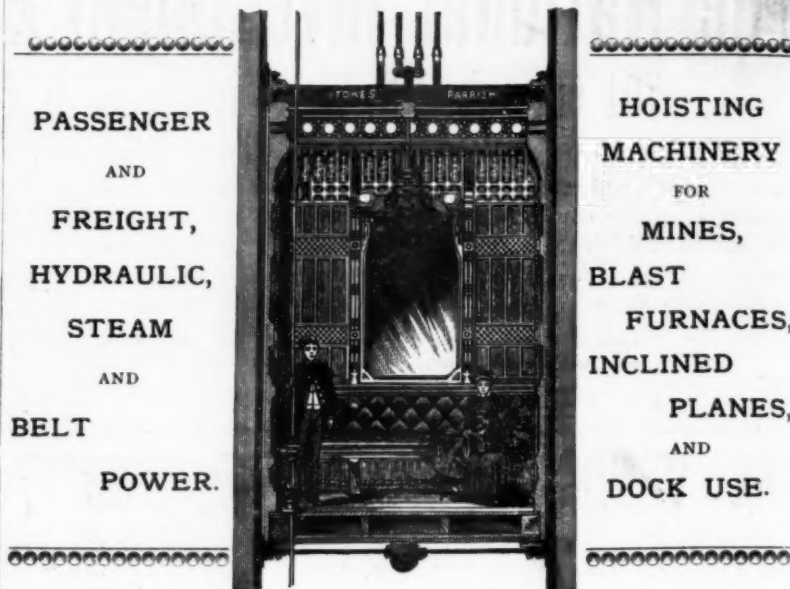
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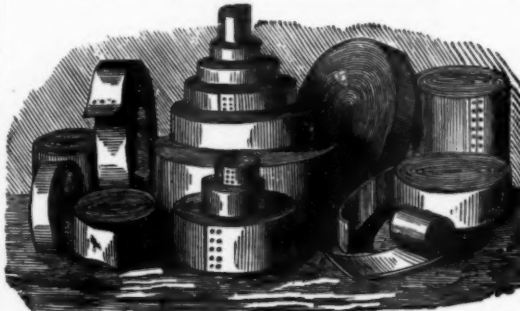
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